

1896.



Bristol Port Sanitary District

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ANNUAL REPORT

OF THE

Medical Officers of Health

AND OF THE

CHIEF PORT INSPECTOR OF NUISANCES,

**FOR THE YEAR 1896.**

—O—

*Printed by order of the Port Sanitary Committee*

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BRISTOL:

BENNETT BROTHERS, LD., PRINTERS, COUNTERSLIP.

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## BRISTOL PORT SANITARY DISTRICT.

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*Port Medical Officer of Health—*

D. S. DAVIES, M.D., D.P.H.

---

*Assistant Port Medical Officer of Health—*

J. C. HEAVEN, L.R.C.P., M.R.C.S., D.P.H.

---

*Assistant Port Medical Officers of Health (appointed  
under the provisions of the Cholera Regulations)—*

C. W. J. BRASHER, M.R.C.S., L.R.C.P.

ALF. N. GODBY GIBBS, M.R.C.S., L.R.C.P.

F. E. PEAKE, M.R.C.S., L.R.C.P.

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*Chief Port Inspector of Nuisances—*

S. O. DIMOND, *Cert. Insp. San. Inst.*

---

*Port Sanitary Inspector at Arconmouth—*

A. DICKENS.

---

*Arconmouth Hospital Caretaker and Assistant Inspector  
and Boatman—*

J. REX.

---

*Caretakers on Hospital Ship—*

C. EADE, T. L. PRESS.

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*Master of S.S. "Luath"*

GEO. JACKSON (*Holding Pilot's Certificate for Bristol  
Channel*).



# BRISTOL PORT SANITARY DISTRICT.

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## **Report of the Medical Officers of Health and of the Chief Port Inspector of Nuisances for the Year 1896.**

To THE CHAIRMAN AND MEMBERS OF THE  
BRISTOL PORT SANITARY AUTHORITY.

*March, 1897.*

GENTLEMEN,

We beg to submit our Report for the year 1896.

### **PERMANENT CONSTITUTION OF PORT SANITARY AUTHORITY.**

By an Order issued by the Local Government Board on the 11th June, 1894, the Mayor, Aldermen, and Burgesses of the City of Bristol, acting by the Council, are permanently constituted the Port Sanitary Authority for the Port Sanitary District of Bristol. This Order came into force on the 1st day of August, 1894.

### **Limits of Jurisdiction.**

The Jurisdiction of the Port Sanitary Authority extends to so much of the Port of Bristol as is comprised within the following lines, that is to say, a straight line drawn from the most westerly extremity of Swallow Point to the south western extremity of the common boundary of the Ports of Newport and Bristol, and a line drawn thence and following the boundary of the Port of Bristol to its termination at the site of the Severn Tunnel, together with the waters of the said Port of Bristol within such limits, and all islands, bays, harbours, rivers, creeks, and canals within the aforesaid limits.

These limits were shown upon a Map, issued together with the Medical Officers' Report for 1894.

The various Riparian Authorities contribute in the proportions following, towards expenses incurred by the Port Sanitary Authority—

The Urban Sanitary Authority for the City of Bristol	90%
The Urban Sanitary Authority for Clevedon - -	2%
The Urban Sanitary Authority for Portishead -	4%
The Rural Sanitary Authority for Long Ashton -	4%

TONNAGE FROM FOREIGN PORTS—arriving at Bristol, Docks during 1896 (net register tons)

Bristol,	Avonmouth,	Portishead,	Total for whole Port
551,589	216,486	29,015	... 797,090

#### GRAIN IMPORTS.

City Docks.	Avonmouth.	Portishead.	Total for whole Port
Qrs. 2,316,093	865,295	260,842	... 3,442,230

### General Inspection of Ships.

Full details of the General Inspection of Vessels are contained in the Report of the Chief Port Inspector of Nuisances, (See page 13).

### Cholera Precautions.

Between the dates July 20th and October 3rd the Steam Launch was regularly engaged in visiting and inspecting vessels in Kingroad, a Medical Officer being retained for this special duty.



# CHOLERA AND OTHER PRECAUTIONS, 1896.

Table giving particulars of Ships from infected, suspected and other Ports, spoken or visited by Medical Officers and Inspectors in Kingroad.

Country	Name of Ports	Visited & spoken by Medical Officer & Inspectors	No. of persons composing crews	Country	Name of Ports	Visited & spoken by Medical Officer & Inspectors	No. of persons composing crews
Russia	Taganrog	12	247	France	Brought forward	115	2067
	Nikolaev	6	122		St. Malo	2	13
	Marinpol	5	107		Roscof	1	4
	Archangel	9	132		St. Brieux	1	5
	Riga	2	19		Rouen	3	38
	Novorossisk	2	42		Charente	1	10
	Genitchi	2	40		Nantes	5	31
	Kemi	1	19		Other Ports	2	30
	Rafso	1	19		Bordeaux	3	36
	Onega	1	20	Portugal	Oporto	5	50
	Uleaborg	1	12		Denia	1	15
	Finland	2	28	Spain	Huelva	2	35
	Helsingfors	1	7		Valencia	2	26
	Other Ports	7	129		Almeria	2	27
Germany	Wasa	1	19	Norway	Drammen	2	22
	Hamburg	20	306		Frederickstad	3	32
	Memel	1	15		Kragero	1	12
	Dantzic	2	30		Christiana	1	12
Egypt.	Alexandria	2	42	Sweden	Gottenberg	3	40
	Bona	1	19		Malmö	1	13
Asia Minor	Smyrna	5	117		Sundsväl	3	46
					Gefle	1	16
Sicily	Palermo	1	15		Other Ports	3	47
				Canada and Newfoundland	Various Ports	22	521
Roumania	Sulina	3	68	North America	N. York	14	398
	Ibrail	2	46		Wilmington	3	32
	Kustenje	2	42		Philadelphia	5	151
	Reni	1	22		San Francisco	1	29
					Norfolk	2	70
Holland and Belgium	Antwerp	7	122		Mobile	1	21
	Rotterdam	2	36		Savannah	3	33
	Amsterdam	5	89	South America	River Plate Ports	13	291
	Various Others	8	136		Argentina	1	10
					Darien	1	12
					Talchuanano	3	57
Carried forward		115	2067	Totals		232	4252

68 of these Ships were bound to the Port of Gloucester

### **Repayment of Port Sanitary Expenses**

On January 9th the Port Medical Officer of Health attended, with the Deputy Chairman, on a Deputation to the Chancellor of the Exchequer with the view of obtaining from Imperial Funds repayment of the whole or part of the special cholera expenses incurred by Port Sanitary Authorities under the Special Cholera Regulations of the Local Government Board.

In spite, however, of a careful representation of the case, the Deputation failed to impress the Chancellor of the Exchequer with the fact that the Special Hospitals provided and the extraordinary Inspection expenses incurred are quite unnecessary for dealing with home diseases, and he appeared to regard them as merely so many necessary Port provisions which had previously been omitted. They also failed to impress him with the extent and importance of the protection afforded to all inland districts by the control of the movements of persons arriving, and by the forward notification of their coming to the Sanitary Authorities at their destination, and in the end the answer was unfavourable.

### **Port of Gloucester.**

Bristol and Gloucester	}	Port Sanitary Authorities.
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An Amending General Order under the Cholera Regulations was issued by the Local Government Board under date January 20th, 1896, defining the joint action of these two Authorities in regard to cholera.

Briefly, this Order provides:—

“ (Art. II.) With regard to ships bound to the Port of Gloucester which are brought up for Customs purposes within the Port of Bristol:—

The Bristol Officers of Customs are to carry out the duties of Art. II. of the Regulations, as if such ship were bound to the Port of Bristol; and are to

give notice to the Bristol Port Sanitary Authority of the detention of any such ship ascertained to be affected with Cholera, or which they may have reason to suspect of being so infected.

The Bristol Port Medical Officer of Health is thereupon to inspect the ship within 12 hours, and to deal with it in every respect in the manner prescribed in the General Regulations, and at the same time the Gloucester Port Sanitary Authority is to be informed of the detention of the ship.

*b* (Art. III.) With regard to ships bound to the Port of Gloucester which are brought up for Customs purposes within the Port of Gloucester:—

The Gloucester Officer of Customs and the Gloucester Medical Officer of Health are to carry out the duties of the Regulations as to detention and inspection: and if the ship is found to be “infected” the Bristol Port Sanitary Authority is to be informed by the speediest method available, and the Gloucester Port Medical Officer of Health shall then remain on board such ship until she has been moored and anchored, in pursuance of Art. X. of the Regulations, at the Bristol Mooring Station, or until the arrival on board of the Bristol Medical Officer of Health, who then undertakes the carrying out of the remaining provisions of the Regulations. The Gloucester Medical Officer of Health will deal similarly with any other ships, not moored in or at any of the basins, docks, quays or wharves within the jurisdiction of the Gloucester Port Sanitary Authority, which he may find to be infected with Cholera although not detained by the Officers of Customs.

(Art. IV.) The Bristol Port Medical Officer of Health will not examine, under Art. VIII. of the Regulations, ships other than those detained as above by

the Officers of Customs, unless he has been requested in writing by the Medical Officer of Health or by the Clerk to the Gloucester Port Sanitary Authority on their behalf to do so. Such request may refer to ships generally bound to the Port of Gloucester coming or being within the Port of Bristol, or to a particular ship so situated, and may be for a definite period, or until varied or revoked in writing.

(Art. VIII. and IX.) Expenses incurred by the Bristol Port Sanitary Authority in the execution of this Order are to be defrayed by the Gloucester Port Sanitary Authority.

c (Art. XII.) With regard to ships which may have been moored in or at any of the basins, docks, quays or wharves within the jurisdiction of the Gloucester Port Sanitary Authority.

The Gloucester Port Sanitary Authority and their Medical Officer of Health carry out the Regulations in the case of any ship so moored, and subsequently found to be "infected" with Cholera: and provide a proper supply of water, whereupon all casks and tanks upon such ship are emptied and cleansed: but any ship so found to be infected before it has passed beyond the tidal basin situate at Sharpness, and which shall not have commenced to discharge its cargo, may be ordered to be removed and towed to the Bristol Mooring Station, to be there moored and dealt with by the Bristol Port Sanitary Authority and their Officers, as before.

### **Cholera Inspection.**

The danger from the importation of Cholera has been somewhat less pressing than in recent years. On the 8th May the following Ports were scheduled as "infected"

(according to the list of the Port of London):—Morocco and Algerian Ports, Alexandria, Calcutta, and St. Petersburg; and Black Sea Ports were regarded as “suspicious.”

On June 6th information as to the excessive prevalence of Cholera throughout Egypt was received, and careful watch was directed to arrivals thence.

## **Regulations as to Cholera, Yellow Fever, and Plague.**

### *Ports—General.*

The Local Government Board issued these General Regulations under date 9th November, 1896, in pursuance of Section 130 of the Public Health Act, 1875, as amended by the Public Health Act, 1876.

By this latter Act the Quarantine Regulations previously in force in regard to Yellow Fever and Plague are repealed, and the control of ship-borne Yellow Fever, or Plague, is placed in the hands of Port and Riparian Authorities under similar Regulations to those already in force in regard to Cholera.

Under the new Regulations the Officer of Customs will still act in conjunction with the Port Sanitary Authority (Part II. Art. II.), and will detain “infected” or “suspected” ships for 12 hours for Medical Inspection.

Thereupon the duties as to Medical Inspection, Medical Examination, removal and nursing of patients, burial, disinfection, forward notification of persons leaving the ship, control over infected bilges, and ballast tanks, and over water supplies devolve upon the Port or Riparian Authority exactly as in the Cholera Regulations, which these new Regulations supplant and extend.

The Regulations also provide for the hoisting by the Master of every infected ship when within 3 miles of the

coast of any part of England or Wales, at the masthead or where best seen, of a large flag of Yellow and Black borne quarterly, the flag to be kept displayed during the whole of the time between sunrise and sunset. No provision appears to be made for night signals. The penalty in case of wilful neglect, refusal to carry out, or obstruction to the execution of these Regulations, is One Hundred Pounds, and Fifty Pounds additional penalty daily during continuance of default.

The issue of this Order is of some interest in view of the serious prevalence of plague during the last months of 1896 at Bombay and some other Indian Ports: and the Local Government Board has already taken steps to ensure that vessels arriving from suspected Ports shall be inspected and dealt with rigorously under the provisions of the latest Regulations.

No unusual circumstances occurred in connection with the cases of sickness dealt with upon board ship, as detailed in tables C and D. The record of the year was in the main, uneventful, but a very large amount of routine work has been secured, tending to the better health conditions of a floating population of 16,280 persons: and precautions against the importation of disease have a value far greater than is ever apparent, as the absence of any resultant epidemic hinders the opportunity for comparison.

The Canal Boat Inspection has been carried out as in previous years. (See p. 26.)

We are, Gentlemen,

Your obedient servants,

D. S. DAVIES,

*Port Medical Officer of Health.*

J. C. HEAVEN, ,

*Assistant Port Medical Officer of Health.*



## Report of the Chief Port Inspector for the year 1896.

*To the Bristol Port Sanitary Committee.*

PORT SANITARY OFFICES,  
40 PRINCE STREET,  
BRISTOL, *February, 1897.*

GENTLEMEN,

I beg to render an account of the Inspection of ships carried out by the Port Sanitary Inspectors during the year 1896.

The duties are carried out under the provisions of the Public Health Act, 1875, which enacts that a ship when in the district of a Local Authority shall be dealt with as a house within such district (sec. 110).

The requirements attended to include cleanliness, lighting, ventilation and overcrowding of living spaces, leakage and damp berths from any cause, effluvium from closets, peaks, holds, paint and oil lockers, bilges, foul accumulations or deposits affecting living spaces, drainage and repair of dilapidations, provision of pure water supplies and suitable vessels for containing the same, seizure of bad food intended for use of crew, and many other matters that seldom come under notice in respect of houses on shore, but which are of great importance in the limited spaces available on ship board. In order to carry out these requirements all vessels are examined shortly after arrival, except regular traders, which are examined from time to time as required.

The Public Health (Ships) Act, 1885, and Regulations made under this and the principal Act provide for dealing with the importation of infectious diseases, removal of infected persons and detention in hospital, disinfection, the giving notice of the existence of infectious sickness to the Customs Authorities and the Medical Officer of Health, &c.: and to facilitate this work an Inspector visits all vessels from Foreign Ports that enter the River to make all necessary inquiries, and to report any suspicious cases immediately at head quarters, so as to enable the case to be dealt with without delay.

During epidemic periods the Inspectors are employed alternately on day and night duty visiting all arrivals in Kingroad.

### **General Inspection.**

The various Doeks were visited daily, and during the year 1,675 ships were inspected in detail, which is the greatest number dealt with in any year since the work was commenced.

1,530 of this number sailed under the British flag, and 145 belonged to various Foreign Owners, chiefly Norwegian.

These vessels consisted of 605 sea-going ships, and 1,070 coasters.

Out of the 1,675 vessels inspected, 292 were found to have one or more sanitary defects affecting the crew spaces, or 17·4 per cent. of the total number inspected; but this result is an improvement of 3 per cent. as compared with the year 1895; and it also is the lowest percentage obtained in any year since the work was commenced in 1885. (*See Table B*).

The defects found were of the usual character noticed in previous years, but not of such a bad description as was formerly noted.



Of the 605 sea-going ships, 197, or 32·5 per cent., had one or more nuisances existing on board.

This result is nearly the same as obtained in 1895, the difference being but 0·3 in favour of 1895.

In the 1,070 coasting vessels examined, sanitary defects were found in but 95, or 8·8 per cent., which is an improvement of 3·6 per cent. as compared with 1895 results.

The difference between the two classes of ships is, therefore, 23·7 per cent. in favour of coasting vessels.

This is accounted for by the fact that the latter ships are not exposed to such severe conditions: they are oftener in Port, when any necessary repairs can be done. They come more often under sanitary supervision: and the employment of their crews is fairly constant, whereas in sea-going ships the employment is generally for the trip only.

It is hoped that improved conditions will soon be obtained in the sea-going class as newer ships come into use, and sanitary principles obtain more recognition amongst officers and seamen; and as the tendency is to build larger ships, greater space is, in most cases, allotted to the use of the crew, and in some vessels mess and bath rooms have been provided for their use—an improvement that has long been advocated by sanitary officers, and which should become general.

The total number of Nuisances of all kinds found on the 292 unsatisfactory ships was 387. Of these 96 were on coasting ships, and 291 on sea-going ships.

The number is 1 less than those found in 1895, but as 285 more vessels were inspected this year, a steady improvement is maintained. The number of insanitary conditions in 1894 was 496 in a total of 1,594 vessels inspected.

These 387 Nuisances consisted of :—

243	Foul or dirty forecastles, or living spaces.
5	Living spaces with defective lighting.
17	do. do. ventilation.
1	With foul bilges.
13	„ water closets, paint-rooms, &c., ventilating into crew spaces.
8	„ defective or foul closets.
5	„ damp bunks, caused by unlined iron plates
70	„ leakages through decks, fittings, ports, &c. causing a nuisance.
11	„ bad water supplies, or dirty tanks for containing same.
14	„ various dilapidations of pipes, fittings, chain casings, &c.

---

Total 387

The dirty forecastles, *i.e.* 243 found, were 5 less than in 1895, or 14·5 per cent. of the total inspected.

In 1895 the number found was 248, equal to 17·8 of the total dealt with, thus showing an improvement of 3·3 per cent. on the past year's working, whereas the percentage in 1894 was 21·2 per cent. These results go to prove a steady advance under this head.

The defects of lighting and ventilation exceeded those of 1895 by 3 in each class: but I do not expect to find retrograde results again.

Nuisances owing to effluvia from closets, oil and paint lockers, entering the living and sleeping places, were 7 in excess of the previous year; and they occurred mostly on ships not usually trading to this district; but nuisances from defective closets were 2 less.

Damp bunks, from unlined iron surfaces over or in contact therewith, were noted in but 5 cases, or 7 less than in the previous year: but 70 cases of leakage were found, which was 12 in excess: most of these arose from accident or stress of weather, and will, therefore, be always a varying quantity: but the relative proportions for the last two years was the same, viz., 4.1 per cent.

Bad drinking water, and unclean vessels for containing the same, were dealt with in but 11 cases, as against 37 in the previous year. The difference was caused by the ships from infected ports being less numerous than during 1895.

On one ship a quantity of bad salt beef was discovered, and in consequence of action taken, two barrels, or about 400lbs., were destroyed.

Dilapidations exceeded those of 1895 by 10.

In dealing with these nuisances it was necessary to make 292 requisitions on the various owners or masters concerned: 238 were verbal, and 54 written notices.

266 of these notices, or 91 per cent., were complied with, and the remaining 26 were probably remedied at home ports, as the masters or owners promised to this effect: but I am without information until the vessels return.

This result is 1.6 per cent. less than that obtained in 1895.

The system of advising Sanitary Officers at forward ports has again been carried out with success, and I beg again to thank the Port Sanitary Officers at adjacent ports for the assistance given in getting the requisitions of this Authority complied with, and for information given.

The revisits made to enforce compliance numbered 466.

The number of persons inhabiting the various crew spaces on the ships examined amounted to 16,280, thus proving that the health interests of a large floating population receive due consideration, in addition to the protection afforded to the resident population of the port.

### **Special Precautions.**

To prevent importation of Cholera and other diseases from infected ports, extra precautions are taken by visiting ships in Kingroad and the Channel, so that early treatment and removal of sick persons, disinfection, discharge of doubtful water supply, cleaning, &c., can be carried out before the ships come into the dock, and thus in contact with the population.

In this work 232 ships were visited, in company with the Medical Officer on duty. Of this number 68 were bound to the Port of Gloucester.

During the prevalence of smallpox in Gloucester the trading vessels from that port received extra attention, and the Mate of the "Luath" was told off to visit these craft daily when in port. In this way 191 vessels were kept under observation, and 270 visits made, in addition to the ordinary work set out in this report.

### **Steam Launch "Luath"**

After the stranding of the Launch, at the end of the previous season's work, the necessary repairs and cleaning were done, under contract, to the satisfaction of Lloyd's Surveyor. The boiler was lifted out, and the engine dismantled for the purpose of complete survey, and repaired, which practically put the boat in first-class condition; but she, unfortunately, met with a slight accident after this had been done, by a side-port bursting open, when she heeled over on the mud at low water, by which the water admitted spoiled some cushions, and required the removal and replacing of lining and fittings on one side of the saloon.

On completion of this work the boat was utilised to convey small-pox patients in a specially provided deck-house to the Hospital Ship: also to convey the water and stores required.

On July 20th she went on active duty in Kingroad, which was regularly continued up till October 3rd.

She is now lying up in the Merchants' Dock, but is kept ready for any emergency.

### Ship Hospital.

Patients treated, 1896 :—

<i>City Cases.</i>			
	Convalescent cases	Admitted.	Discharged cured.
Small-pox.		5	5

---

The Ship has been kept in good repair by the Staff, assisted by the "Luath" crew when necessary: and no special repairs have been required, except extra moorings, necessitated by the breaking of one of the stern cables, which was caused by the wash of a pleasure steamer passing at a high speed, so that it became necessary to lay another anchor and cable, and to supplement the shore posts to prevent her breaking adrift should the event happen again.

### Port Hospital, Avonmouth.

Patients treated, 1896 :—

<i>City Cases.</i>			
	Convalescent cases	Admitted.	Discharged cured.
Scarlet Fever.		89	80
			9

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This Hospital has been useful in relieving the pressure on the City Hospitals by providing accommodation for Convalescents, and so making room for acute cases.

But few repairs were found necessary, and these were carried out by the usual Staff or Workmen from the Surveyor's Department.

The Buildings and Appointments are all in good order.

Appended are Tables, showing the work done in concise form.

I am, Gentlemen,

Your obedient servant,

S. DIMOND.

*Chief Port Inspector of Nuisances.*



## Port Sanitary.

TABLE A.

SHIP INSPECTION AT BRISTOL, AVONMOUTH, PORTISHEAD, AND KINGROAD, DURING THE YEAR 1896.

Showing particulars of such Inspection, the Action taken, and Results

## FOREIGN.

1896	Description of Ships.			British.	Foreign.	Ships having Foul or Dirty Crew Spaces.	With Defective Lighting.	With Defective Ventilation.	Foul Bilges or Deposits.	Water Closets or Paint Lockers connected with Living Spaces.	Foul or Defective Closets.	Requiring lining of Iron Plates over Sleeping Bunks.	Leakages into Living Spaces.	Bad Water Supply or Unclean Tanks.	Overcrowding.	Dilapidations.	Total sanitary defects.	Verbal Notices complied with.	Verbal Notices in abeyance..	Written Notices complied with.	Written Notices in abeyance.	Ships visited or spoken in King road or River.	Re-visits to enforce Notices.	No of Persons inhabiting Spaces on Ships inspected
	Port of Sailing.	Steamship.	Sailing.																					
Jan.	From Foreign Ports.	33	15	38	10	16	..	3	1	..	1	..	7	1	..	..	29	10	1	4	1	47	22	968
Feb.	do.	46	8	42	12	21	..	3	..	2	2	2	8	..	..	1	39	16	..	7	1	43	25	1139
Mar.	do.	24	7	26	5	9	..	..	..	1	..	..	4	..	..	..	14	7	1	3	..	34	12	595
April	do.	34	16	38	12	9	..	..	..	1	1	..	5	..	..	..	16	8	1	3	..	33	9	618
May	do.	24	7	25	6	9	..	..	..	..	..	..	..	1	..	..	10	7	1	1	..	31	20	658
June	do.	30	20	35	15	13	..	..	..	1	1	..	3	..	..	..	18	13	2	2	..	47	25	943
July	do.	36	22	36	22	9	..	2	..	..	..	..	1	2	..	..	14	10	2	1	1	65	29	1085
Aug.	do.	40	14	39	15	10	..	2	..	2	..	..	5	..	..	..	19	11	2	1	..	103	19	1156
Sept.	do.	48	20	51	17	16	..	1	..	1	1	..	6	3	..	..	28	14	..	6	..	89	30	1380
Oct.	do.	37	12	40	9	10	..	2	..	3	..	..	7	1	..	..	23	9	..	2	1	50	18	953
Nov.	do.	40	11	41	10	16	2	3	..	2	2	..	8	3	..	1	40	10	..	8	5	40	57	1022
Dec.	do.	47	14	49	12	21	3	..	..	..	..	..	14	..	..	3	41	19	2	4	1	62	38	1096
Total		439	166	460	145	159	5	16	1	13	8	5	68	11	..	5	291	134	11	42	10	644	304	11613

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## COASTWISE.

Jan.	From Coastwise	11	71	82	...	4	...	...	...	...	...	...	...	...	...	...	4	4	...	...	...	...	8	408
Feb.	do.	13	81	94	...	13	...	...	...	...	...	...	...	...	...	...	13	13	...	...	...	1	26	428
Mar.	do.	16	79	95	...	5	...	...	...	...	...	...	...	...	...	...	5	4	...	...	...	15	9	429
April	do.	13	82	95	...	9	...	...	...	...	...	...	...	...	...	...	9	9	...	...	...	1	14	312
May	do.	9	85	94	...	9	...	...	...	...	...	...	...	...	...	...	9	9	...	...	...	12	10	400
June	do.	2	48	50	...	2	...	...	...	...	...	...	...	...	...	...	2	2	...	...	...	3	1	212
July	do.	18	87	105	...	11	...	...	...	...	...	...	1	...	...	...	12	12	...	...	...	14	22	460
Aug.	do.	9	77	86	...	3	...	...	...	...	...	...	...	...	...	...	3	3	...	...	...	...	6	357
Sept.	do.	20	83	103	...	5	...	...	...	...	...	...	...	...	...	2	7	7	...	...	...	...	18	471
Oct.	do.	14	79	93	...	8	...	1	...	...	...	...	1	...	...	1	11	10	...	...	1	...	16	424
Nov.	do.	10	77	87	...	8	...	...	...	...	...	...	...	...	...	3	11	7	3	1	...	...	15	385
Dec.	do.	12	74	86	...	7	...	...	...	...	...	...	...	...	...	3	10	9	1	...	...	...	17	381
Total	From Coastwise	147	923	1070	...	84	...	1	...	...	...	...	2	...	...	9	96	89	4	1	1	46	162	4667
	Foreign	439	166	460	145	159	5	16	1	13	8	5	68	11	...	5	291	134	11	42	10	644	304	11613
Grand Totals		586	1089	1530	145	243	5	17	1	13	8	5	70	11	...	14	387	223	15	43	11	690	466	16280

## Summary.

Number of Ships Visited in Kingroad or River to prevent importation of infectious disease	...	...	690
Number of Ships Inspected in detail at Bristol, Avonmouth, and Portishead Docks	...	...	1675
Number of Ships on which disinfection was carried out	...	...	7
Number of revisits to enforce compliance with Notices	...	...	466

Total Inspections, Visits, etc. ... 2838





## SHOWING PROGRESSIVE WORK OF SHIP INSPECTION SINCE INSTITUTED.

Year.	Number of Ships Inspected	CONDITION.		NOTICES.		
		Good.	Unsatisfactory.	Percentage having one or more Defects.	Served.	Complied with.
1885 (4 months)	191	109	82	43 per cent.	82	34
1886	722	577	145	20 per cent.	186	85
1887	1461	1073	388	26 per cent.	388	270
1888	1371	1072	299	22 per cent.	313	206
1889	1339	995	344	25 per cent.	391	303
1890	1224	874	350	28 per cent.	386	314
1891	1322	950	372	28 per cent.	439	366
1892	1265	1004	261	21 per cent.	317	289
1893	1211	998	213	17.5 per cent.	222	204
1894	1594	1204	390	24 per cent.	390	359
1895	1390	1106	284	20.4 per cent.	284	263
1896	1675	1383	292	17.4 per cent.	292	266

The Vessels unaccounted for left the Port and have not been seen since, but there is reason to think the required work has been done in most cases. It is the custom of many ship owners to get repairs done at home or loading ports, and those so done cannot be added to our returns for want of definite information.

# Port Sanitary.

## TABLE C.

Infectious Diseases on Ships during the year 1896.

1896	Name of Ship.	Where from.	Nature of Disease.	No. of Cases.	Died.	No. Recovered.	REMARKS.
Jan. 22nd	"Hero" S.S.	Hamburg	Small Pox	1	0	*	Ship did not wait for Medical Officer's visit, but proceeded to Gloucester. Information forwarded.
Apr. 22nd	"Gledhow" S.S.	Buenos Ayres (via London)	Enteric Fever	1	0	*	Patient landed at Greenwich, fumigation and cleaning done, all well up to time of leaving Portishead.
" 23rd	"Deveron" Sch.	London	Diphtheria	1	0	1	Ship and clothing disinfected, patient removed to Infirmary, Bristol.
June 22nd	"Superior" Bque.	Savannah	Enteric Fever	1	1	0	Removed to General Hospital, all disinfection of ship and clothing, &c., done.
" 25th	"Elda"	Rosario	do.	1	0	1	
Aug. 29th	"Vigil"	do.	do.	1	0	*	Case removed to Hospital at Rosario.
" 30th	"Harcalo" S.S.	do.	do.	4	0	4	Treated in Hospital at Rosario.
Totals				10	1	6	
Other Diseases.							
June 25th	"Elda" Barque	Rosario	Malaria	1	0	1	Patient was treated at General Hospital.
" 3rd	"Euria" S.S.	New York	do.	1	0	1	Proceeded on to Gloucester with the ship.
Aug. 20th	"Ionin" Barque	Savannah	do.	1	0	1	Patient recovered under treatment here; water tanks emptied and refilled.
" 20th	"Ole Smith Plough"	Wilmington	do.	2	0	2	do.
Oct. 10th	"Kansas City" S.S.	New York	Dysentery	1	0	1	
" 21st	"Edith" S.S.	Sevastopol	do.	2	0	2	
Nov. 14th	"Agnes Campbell" Barque	Wilmington	Malaria	1	0	1	Removed to General Hospital. Ship's tanks emptied & refilled.
" 14th	"Cap" Barque	Savannah	do.	1	0	1	Recovered under treatment. do.
" 17th	"Ganges" S.S.	Alexandria	Dysentery	1	0	1	
Totals				11	0	11	

# Port Sanitary.

## TABLE D.

Return of Cases of Sickness reported to have occurred during the voyage,  
or found on arrival in Port.

1896.	Small Pox.	Cholera.	Diphtheria.	Enteric Fever.	Fever and Ague.	Yellow Fever.	Diarrhoea.	Dysentery.	Influenza.	Scurvy.	Veneral Diseases.	Rheumatism.	Phtisis and Tuberculosis.	Apoplexy.	Heart Diseases.	Lung Diseases.	Inflammation of Bowels.	Gastric Fever.	Disease of Liver.	Hernia.	Urinary Diseases.	Accidents.
January ...	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	1
February...	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
March ...	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
April ...	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
May ...	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
June ...	-	-	-	2	1	-	-	-	-	-	1	1	-	-	-	-	1	-	-	-	-	-
July ...	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
August ...	-	-	-	1	4	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
September	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
October ...	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
November	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
December	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTALS ...	1	-	1	10	5	-	-	4	-	-	3	1	-	1	2	4	1	-	1	-	-	6

TABLE E.  
CLASSIFICATION OF SHIPS INSPECTED.

Class of Vessels	Number Inspected.	Number having Defects.	No. of Orders and Notices Issued.	Percentage Defective.
BRITISH { Steamers Sailing }	537 993 1530	170 103 273	Verbal 226 Written 47 273	17.8
FOREIGN { Steamers Sailing }	49 96 145	7 12 19	Verbal 12 Written 7 19	13.1
<b>Totals—British and Foreign }</b>	<b>1675</b>	<b>292</b>		

Of the 1,675 vessels inspected, 605 were sea-going vessels, of which 197, or 32.5 per cent, had defects, 1,070 were coasters, of which 95, or 8.8 per cent, had defects.

The total number of nuisances found were :—	On sea-going vessels,	291	387
"	"	96	
"	On coasters,	96	

## **ANNUAL REPORT OF CANAL BOAT INSPECTION FOR YEAR 1896.**

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TO THE COMMITTEE OF THE

BRISTOL URBAN SANITARY AUTHORITY.

GENTLEMEN,

I beg to report the steps taken in carrying out the provisions of the Canal Boats Acts and Regulations of 1877 and 1884, as required by section 3 of the later Act.

1.—These duties were discharged by the Port Sanitary Inspector in conjunction with his Port duties, which require his attendance at the Harbour daily, and he is remunerated in connection with these duties.

2.—The number of Canal Boats inspected in 1896 was 89, belonging to eight or nine various owners who trade to this port, and of this total 19 boats had one or more contraventions, but these defects were mostly the effects of wear and tear, and the general condition was fairly good.

The boats are mostly worked in pairs by 3 men, and but 3 women and 1 child were found on board during the year: about 40 boats only ply in this district.

### Infringements of Act and Regulations.

A.—Not Registered	...	...	...	1
B.—Notification of Change of Master	...	...	...	—
C.—Certificates not produced	..	...	...	5
D.—Defective Marking	...	...	...	6
E.—Overcrowding	...	...	...	—
F.—Separation of Sexes	...	...	...	—
G.—Want of Cleanliness	..	...	...	2
H.—Insufficient Ventilation	...	...	...	—
I.—Painting Regulations	...	...	..	3
J.—Provision of Water Vessels	...	...	...	—
K.—Removal of Bilge Water	...	...	...	—
L.—Notification of Infectious Disease	...	...	...	—
M.—Admittance refused	...	...	...	—
Dilapidations of Cabins or excessive leakages	...	...	...	7
Non-identification of Boat by Certificate	...	...	...	1
Total				25

4.—No legal proceedings were found necessary : and

5.—All these contraventions have been remedied under notice.

6.—No infectious disease was reported or found.

7.—No detention of boats was required.

8.—This Authority is not a Registration Authority under the Acts.

I am, Gentlemen,

Your obedient servant,

S. DIMOND,

*Inspector of Canal Boats.*

*January 20th, 1897.*









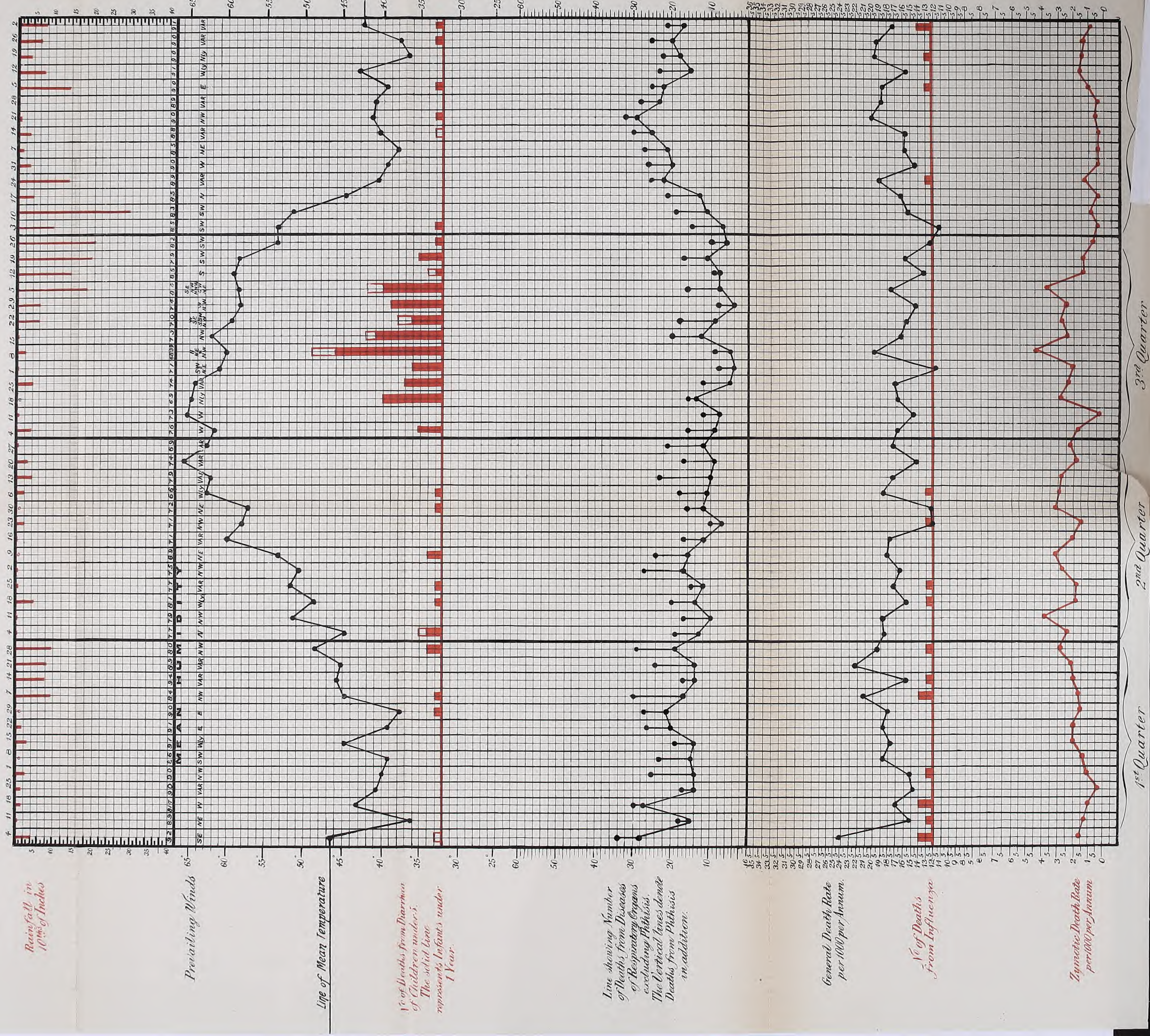


# Chart

Showing Mean Temperature, Rainfall, relative Humidity, (saturation - 100.) prevailing Winds, also Number of Deaths returned from Diseases of Respiratory Organs excluding Phthisis, from Diarrhoea and from Influenza, the General Death Rate and the Zymotic Death Rate in the Bristol Sanitary District for each Week of the Year 1896.

Week Ending

January February March April May June July August September October November December Jan





1896.



CITY & COUNTY OF BRISTOL.

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# ANNUAL REPORT

OF THE

Medical Officer of Health.

—O—

*Printed by order of the Sanitary Committee.*

—O—

BRISTOL:

BENNETT BROTHERS, LD., PRINTERS, COUNTERSLIP.

1897



# SANITARY COMMITTEE.

1896-1897.

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*The Mayor:* COUNCILLOR SYMES.

*Chairman:* ALDERMAN COPE-PROCTOR.

*Vice-Chairman:* COUNCILLOR PEARSON.

COUNCILLOR BARNETT.

COUNCILLOR BASTOW.

COUNCILLOR CAVE.

COUNCILLOR CLOSE.

COUNCILLOR COTTRELL.

ALDERMAN DIX.

COUNCILLOR GODWIN.

COUNCILLOR LEVY.

COUNCILLOR LLOYD.

COUNCILLOR PEMBERY

COUNCILLOR SWAISH.

COUNCILLOR TODD.

# Bristol Urban Sanitary Authority.

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MEDICAL OFFICER OF HEALTH'S DEPARTMENT, 1896.

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*Medical Officer of Health:*

D. S. DAVIES, M.D. (LOND.), D.P.H. (CANTAB.)

*Deputy Medical Officer of Health:*

J. C. HEAVEN, L.R.C.P., D.P.H.

*Inspector of Nuisances:* Chief Inspector J. W. KIRLEY

*Superintendent Inspector:* \*†T. LOWTHER.

*District Sanitary Inspectors:*

District No. 1—\*J. WILKINSON

„ No. 2—\*H. HASELL.

„ No. 3—\*†F. R. SLADE.

„ No. 4—G. E. BUSH.

„ No. 5—\*†A. E. KING.

„ No. 6—H. CALCUTT.

„ No. 7—\*J. T. LYONS.

*Special Sanitary Inspectors:*

*Inspector of Bakehouses and Common Lodging Houses:*

\*S. O. DIMOND.

*Inspector of Meat, Fish, and Slaughter Houses:* S. THOMAS.

*Inspector of Dairies, Cowsheds, and Milkshops:*

\*†E. J. CASELY.

*Inspector of Houses Let in Lodgings:* \*†H. C. LEAT.

*Inspector of Workshops, Smoke and Offensive Trades:*

\*H. J. KIRLEY.

*Chief Clerk:* E. W. HARRIS.

*Clerk:*° R. R. WARREN.

*Junior Clerk:* W. N. BROWN.

*Medical Attendant at the City Isolation Hospitals:*

Dr. G. C. PAUL.

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\* Certified Inspector Sanitary Institute

† Registered Plumber.

‡ Certified Surveyor Sanitary Institute.

# REPORT.

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## PART I.

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### **General Sanitary Condition of the Urban Sanitary District of Bristol.**

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GENTLEMEN,

The present limits of this District are those of the City and County of Bristol as fixed at the last extension of the boundaries in 1835, and containing an enumerated population at the 1891 census of 221,578. The estimated population to the middle of the year 1896 is 230,623.

The increase of population during the 60 years since 1835 has caused the population to overflow in such manner that Bristol proper forms now but part of a larger Bristol, and the City is surrounded on two sides by Urban Districts containing an aggregate population of 59,509 (Census, 1891), under independent administration but with continuous streets and houses, and forming practically one and the same community with the City.

#### **Site and Soil.**

Bristol is situated in N. Lat.  $51^{\circ} 27' 6.3''$  and W. Long  $2^{\circ} 35' 28.6''$ . The old City lies in great part on low ground in a broad valley lined by the alluvial deposit of the Avon and its tributary the Frome; parts of the City, *e.g.*, High Street and Redcliff, are upon higher ground on the new red sandstone (trias), through which rock the New Cut, or artificial course of the Avon, has been cut, and upon which Bedminster is built. The River Avon, which flows past the quays and streets of the City Harbour, joins the Severn at Avonmouth, at a point some five miles below the old City, to form the Bristol Channel.

The high table land of Clifton, Cotham, and Redland, to the north and west of the City, is situated upon the denuded edges of an antilinal arch of carboniferous rocks, upon which, in certain limited areas, beds of newer formation (*e.g.*, lias) lie unconformably. On Clifton and Durdham Down the Carboniferous limestone is exposed over a large area; and here the gorge of the Avon, cut by the river as it turns to the north to join the Severn, forms the western boundary of the district.

The steep ascents, extending from Granby Hill, on the west, past Brandon Hill to St. Michael's Hill and Marlborough Hill on the east, are on the outcrop of the millstone grit.

Considerable portions of the north-east, and east parts of the City lie upon the new red sand-stone, while Totterdown, part of Cotham, and the slope towards Ashley are upon beds of lias limestone.

### **Water Supply.**

The Water Supply is in the hands of a Private Company, and is obtained by gravitation from springs in the triassic conglomerates, and in the carboniferous limestone on the sides of the Mendips, at points from 5 to 16 miles from the City. The water from two of these springs (Sherborne and Coldbath) is brought direct into the City: that from the other springs is intercepted by the storage reservoirs at Barrow Gurney, 310 feet above Ordnance datum, with an extreme holding capacity of 750,000,000 gallons, whence it is brought into the City, joining the direct supplies at Redeliff. The combined waters supply the lower parts of the City *en route*, and also rise by gravitation to the pumping Station and reservoir at Oakfield Road (200 feet above O.D.) from which they are pumped up to the Durdham Down service Reservoir (320 feet above O.D.) for the supply of Clifton and the higher parts of the City.



A supplementary supply in dry years is obtained from deep wells at Chelvey, eight miles from Bristol, sunk in the new red sandstone (triassic), 200 yards from any inhabited place.

The water is supplied to the City at constant service, and the average daily supply per head is calculated at about 22 gallons.

All water supplied from the Barrow Store reservoirs is now filtered before delivery.

As to any risk of excremental contamination, the water appears to be above suspicion: and no case of disease has within our knowledge ever been traced to its use.

The Company has power to make an annual charge for each closet flush, in addition to the charges for other domestic purposes (not now enforced in the case of a second W.C. cistern in houses of the gross value of £30 and under), hence very many out-door closets throughout the city are dependent upon hand flushing. After 25th March, 1896, the charge for flushing cisterns in dwelling houses of the gross value of £20 and under, was reduced to one shilling per quarter: a concession which, the Secretary assures me, has been found of very great value to the public.

*New Source of Supply.*—In 1888 the Company obtained powers to take the Richford Spring, near Blagdon, and the Langford Spring, at Langford, subject to reservation of prior claims of the district upon those springs: and in 1889, they obtained powers to make a reservoir by impounding the river Yeo. This reservoir, to contain a maximum of 1,700,000,000 gallons, will receive the water from these combined sources, and from it the water will be lifted to join the storage at Barrow. The source of the Yeo is from deep springs similar to those furnishing the established supply.

In view of the great danger of polluted water-supplies, more especially in times of Cholera, special attention has been directed for some years to the condition of the local

wells, many of which are still in use, especially in the lower parts of the City. During the last year, 21 samples have been subjected to analysis, the closure of 14 polluted wells has been secured, and a pure supply of water has been laid on to 68 houses. Similarly in the past 7 years 162 polluted wells have been closed, and a total of 584 houses supplied with pure water, corresponding to a population of about 3,200 persons.

### Water Analysis

*(Particulars supplied by the City Analyst)*

Twenty-one samples of water from local wells were analysed, and with one exception all afforded evidence of sewage pollution. This water is interesting as adding to the already numerous proofs that at a sufficient depth beneath the surface, even when that surface is the grossly polluted soil of an ancient city, organically pure water is to be obtained. Evidence of this is forthcoming under two distinct sets of conditions, first when a deep boring is made, and surface water carefully excluded; secondly, when in consequence of exceptional drought there is no surface percolation. The latter condition prevailed at the time (May 19th), the sample in question was taken from a well in a part of Bristol where it is usually impossible to meet with any but the most polluted water. The result of analysis expressed in grains per gallon was as follows:

Saline Ammonia ...	...	...	·0025
Albuminoid Ammonia ...	...	...	·0036
Nitrogen as Nitrates ..	...	...	·05
Nitrites ..	...	...	none
Chlorine as Chlorides ...	...	...	8·4
Oxygen absorbed in 15 mins. at 80° F.	...	...	...
4 hours	...	...	·040
Total dissolved Solids ...	...	...	96·0
Temporary hardness ...	...	...	48·0
Permanent ..	...	...	16·0
Total ..	...	...	64·0

A second analysis made five days later gave practically the same results.

Seven months afterwards, considerable rain having fallen in the meantime, the water had entirely changed in character, and presented on partial analysis the usual evidences of sewage pollution, a result confirmed by a full analysis in March, 1897. The explanation is obviously that during the exceptional drought the well was supplied with hard but organically pure water by deep springs. The strata under Bristol furnish, as is well known, a hard but organically pure water, rich in chlorides; but later in the year the organic filth with which the adjacent subsoil is loaded re-commenced to be washed into this well, the water of which then resumed what must be considered its normal character. The necessity of taking such seasonal variations into consideration when judging of the purity of well water is exceptionally well illustrated in this instance.

The analyses of this well are here tabulated.

	May, 19, 1896.	May 24, 1896.	Dec. 18, 1896.	Mar. 3, 1897.
Saline Ammonia .	·0025	...	...	·0018
Albuminoid Ammonia	·0036	...	...	·010
Nitrogen as Nitrates and Nitrites ...	·05	·046	2·50	2·54
Nitrites .....	None	None	Trace	Strong trace
Chlorine as Chlorides	8·4	8·5	4·30	5·90
Oxygen absorbed in 15 minutes .....	...	...	...	·026
Oxygen absorbed in 4 hours .....	·040	.	...	·073
Total dissolved Solids	96·0	...	66·5	94·5
Temporary Hardness	48·0	...	..	26·0
Permanent ..	16·0	...	...	32·0
Total ..	64·0	...	...	58·0
Poisonous Metals	None	...	...	None

# **Analysis of Water Supplied by the Bristol Water Works Company.**

*(Results stated in Grains per Imperial Gallon.)*

	GAUGE HOUSE BARROW. (Unfiltered Water.)	COLD BATH SPRING	DEEP WELL, CHEVLEY.
	Greenish		
Colour in 2-ft. Tube...	Brown	Pale Green	Pale Green
Sediment .....	Sand, Algae	None	None
Saline Ammonia .....	·001	·0007	·0002
Albuminoid Ammonia .....	·004	·0020	·0010
Nitrogen as Nitrates .....	·09	·12	·17
Nitrites.....	None	None	None
Chlorine as Chlorides .....	·97	·91	1·13
Oxygen absorbed in 4 hours.....	·039	·003	·014
Total dissolved Solids .....	19·70	23·50	22·54
Lime .....	9·06	11·05	9·88
Magnesia .....	·65	·92	1·18
Sulphuric Anhydride (S.O <sub>3</sub> ).....	·86	·98	·83
Lead, Copper or Zinc .....	None	None	None
Total Hardness.....	16·0	20·5	20·0
Permanent do. ....	3·5	4·5	5·0

F. WALLIS STODDART, F.I.C., F.C.S.,  
City Analyst.

	COURSE.	SIZE.	MEAN GRADIENT	LENGTH OF NEW SEWERS.	AREA DRAINED.	POINT OF DISCHARGE.	COMPLETED IN
1. Clifton High Level.	Hampton Road under College Grounds, and New Zigzag	3ft. 6in. by 3ft. oval, to 4ft. by 3ft. 6 in.	1 in 300 1 in 4 at outlet	11 miles	1,041	Tidal Avon below Zigzag.	1857
2. Bedminster { 1 2 3	East Street, Parson's Street, Avon Sewer District.	4ft. 6in. by 4ft. 2ft. 6in. by 2ft. 6ft. by 5ft. 6in.	..... 1 in 300 1 in 300	5½ miles	607	Tidal Avon at Clift House.	1858
3. Clifton Low Level	Jacob's Wells, Hotwell Rd. St. Vincent's Parade.	3ft. 6in. by 3ft. to 4ft. 6in. by 4ft.	1 in 600	3 miles	279	Joins High Level Outlet.	1859
4. St. Philip	Baptist Mills, Old Market Street, Bread Street, beneath Feeder Canal,	3ft. 6in. by 3ft.	1 in 500	7 miles	685	Tidal Avon at Totterdown Lock.	1861
5. Frome High Level { Low Level {	Stokes Croft (receiving Horfield): Maudlin Street, Frogmore St., College St. Baptist Mills, Ashley Road, Newfoundland Rd., Broadmead, under Frome (receives St. George & Staple-ton).	3ft. by 2ft. 6in. 3ft. 6in. by 3ft. to 4ft. 6in. by 4ft.	1 in 201.5 (at Frogmore St. 1 in 19) 1 in 600	8 miles	1,288	Joins Low Level Main. Joins Avon Intercepting Sewer. (a)	1866
6. Avon Intercepting Main on South of Avon	Stone Bridge, Marsh Street, Prince Street = (beneath Floating Harbour). Totterdown Lock, down Coronation Road	5ft. by 4ft. 6in. 6ft. to 8ft. 3in.	1 in 890 1 in 2,310	8¼ miles	518	Tidal Avon near Old Gaol Tidal Avon at Clift House.	1874

### **Sewerage, Drainage and Excrement Disposal.**

Bristol is completely sewered, cesspools are not countenanced, and no dry systems of disposal are in use. The aggregate length of the main sewers is about 150 miles, and the cost of construction, commenced in 1851, amounted to about £161,000. The sewers take all storm water, which reaches them by way of trapped street gullies; they are without any external openings or special ventilating outlets, and the manholes are all closed down. In the low level sewers provision has been made for flushing from the Floating Harbour, and double tidal-valves are fixed at their outlet. These valves are of cast-iron, oval or circular, and self-acting, hung on chains, and bedded on indiarubber.

The sewers are so designed and constructed with regard to capacity, fall, and position, that they may be ultimately converged to one point, from which an outfall sewer may be continued to a suitable point lower down the river, or into the Bristol Channel. The sewage is discharged without treatment into the tidal Avon, and the rapid scour of the tide, which in this Channel is of exceptional force, generally results in the removal of the sewage without offence, although in remarkably dry summers, when fresh water is deficient in the river, some nuisance is complained of.

These complaints were especially frequent during the exceptionally dry summer of 1896: and on 23rd July the question was referred for exhaustive consideration to a sub-committee. The nuisance is not only felt acutely at those points where the ferries cross, but is complained of in the houses by the residents on the river bank, and in three specific instances the occurrence of disease (one case of enteric fever, and two of septic mischief following parturition, but not notified in either case as puerperal fever) has been attributed to the effluvium from the river.

Although there is no general excess of disease in the districts bordering on the New Cut, and although the water of the river is muddy and brackish, and therefore



not used for drinking or domestic supply by any town or village within the tidal range: the very definite, persistent and increasing complaints of nuisance from this cause must be allowed considerable weight.

It is an elementary axiom that excremental matter should be removed as completely and as rapidly as possible from centres of population, and it would undoubtedly be more satisfactory to carry the sewage right away at once to the Bristol Channel (unless it can be efficiently and economically purified at some intermediate point before discharge into the river), than to allow it to discharge directly, as at present, into the river as it passes through the city.

This must, however, be carried out as a complete scheme, dealing with the entire area of larger Bristol, and with the sewage of up-river towns: and it must not be forgotten that, when completed, there will possibly occur under certain conditions of temperature some considerable smell from the mud banks, though freed of sewage; and that in very hot summers some occasional forms of illness may then, as now, be attributed to the condition of the river.

### **Cleansing, Ashing, and Street Watering.**

This work, formerly carried out by contract, was in November, 1892 taken by the Sanitary Committee into their own hands, under the supervision of the City Engineer, who reports to the Committee. The erection of the Destructor at Albert Road, St. Philip, has led to the discontinuance of the old Refuse Tips, which caused some inconvenience and much complaint. About 650 tons of refuse are destroyed weekly. The present Destructor consumes about half the refuse of the city, the remainder is removed to selected tips outside the city. A second Destructor will need to be provided shortly, in order to deal with the whole of the material collected.

### **Slaughter Houses.**

The condition of the City Slaughter Houses has received exhaustive consideration, and a special Report on the subject was presented to your Committee in June, 1895, and was subsequently printed.

The following were the conclusions arrived at in the Report :—

- 1.—That the condition of more than half the 85 City Slaughter Houses is unsatisfactory.
- 2.—That this unsatisfactory condition is due chiefly to structural defects, which are incapable of remedy.
- 3.—That the scattered situation of the slaughter houses prohibits effectual supervision, and lends opportunity to the introduction and sale of unsound meat. The Medical Officers of Towns where abattoirs are provided agree that they are invaluable in respect of securing proper control of the meat supply.
- 4.—That many of the occupiers of unfit slaughter houses would be glad to avail themselves of a convenient and accessible public slaughter house, as it would be to their greater convenience, and as there they could more readily comply with the stringent enforcement of the bye-laws, which would follow the provision of a proper abattoir.
- 5.—That it is advisable to erect such an abattoir on an area sufficiently large to permit of the erection of slaughter houses to deal with 50,000 head of oxen, sheep and pigs annually, part to be at first erected, to be duplicated as required.
- 6.—That the erection of such an abattoir would be of financial benefit to the town, for where abattoirs are established they are found to be successful. From returns published it appears that the one at Bradford pays 6 per cent., the Manchester one not less than 4 per cent., and the Birkenhead one not less than 5 per cent.\*

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\* See Dr. Gornall's Annual Report for 1894 on "The Health of Warrington."



On the 24th October, 1895, your Committee considered the report upon slaughter houses presented by the Medical Officer of Health on 27th June, and on the motion of the Chairman it was resolved:—"That in the opinion of this Committee it is desirable to provide public slaughter-houses, and that the City Engineer be requested to obtain particulars as to the cost of erecting such structures in other Towns and the extent to which they are made use of, and to report on sites in the City of Bristol suitable for the erection thereof." Certain sites have consequently been submitted for the consideration of the Committee, but have not been approved, and the matter has not advanced further.

There are now 84 private slaughter houses in the city, and 2 belonging to the Docks Committee—one at Hotwells the other at Avonmouth: there is also 1 knacker's yard in St Philip.

### **Isolation Hospitals.**

The erection of the permanent hospitals at Nover's Hill and at Ham Green has made considerable progress.

Hospital accommodation for the present City of Bristol will be adequately provided by the erection of 230 beds in permanent buildings, being in the proportion of 1 bed per 1000 population.

*Small-pox Hospital.*—Of these, 80 beds will be provided on the Nover's Hill site for Small-pox cases, together with adequate Administration and Laundry buildings for the proper accommodation of a sufficient staff of nurses, and the efficient dealing with the clothes. Sixty beds are already provided, and the Administration and Laundry buildings are approaching completion, 52 of the beds are as yet provided only in temporary wooden buildings erected under pressure of the 1893-94 Small-pox epidemic, and an Isolation block of permanent construction provides for the isolation and observation of 8 patients. The Administration block and the Laundry provide fully for the requirements

of the full-bedded site. As these are now all but completed, the difficulties to all concerned in dealing with infectious disease in temporary wards, with imperfect bathing and laundry conveniences, and inadequate accommodation for a sufficient staff, will very shortly disappear.

*Fever Hospital.*—The 150 remaining beds for cases other than Small-pox are to be provided upon the Ham Green site: together with the Administration, Laundry, Stabling and Storage accommodation necessary for the efficient working of the Hospitals.

The Administration building, the Laundry, and Stabling accommodation, and 76 of the 150 beds are already in hand, and when completed will provide, together with those on the Nover's Hill site, good instalments of that sufficient hospital provision in which the City has so long been lacking.

Pending the completion of the full Hospital scheme, Clift House will be continued in occupation, thus raising our available accommodation (including the Port Hospitals) to 132 beds, and our immediately prospective accommodation to 208 beds.

### **Central Disinfecting Station.**

The growth of disinfecting work has, in consequence of the strict control over infectious cases exercised since the adoption of the Notification Act of 1889, increased from a total of 3,319 articles dealt with in 1884 to an average for the past five years of over 38,000 articles annually.

The question of providing more adequate premises for dealing with the large amount of disinfecting work now done, has been referred to the City Engineer for plans and estimates, and upon these he is now engaged.

The Report of the Chief Inspector of Nuisances, which accompanies this, shows that a very large amount of routine work has been performed during the year, and that careful attention has been paid to all the duties coming under his

supervision. Two points mentioned in his Report appear to deserve special notice:—First, the demolition of certain Common Lodging Houses in the Pithay, and the difficulty found by private Common Lodging-House keepers in obtaining suitable premises, suggests that the present would be an opportune time for the establishment, in a central position, of an experimental Municipal Lodging House, managed directly by the Corporation.

Secondly, the large number of drain defects dealt with in houses built in rows, where, from the position of the sewer in the street, and of the w.c. in the back yard, the connecting drain necessarily passes directly under each of such houses. These drains, if not disconnected between the house and the sewer, and duly ventilated on the higher part of the drain, as has been done in recent years, are a source of considerable danger to the occupants: and even when thus dealt with, are far less satisfactory than in the arrangement of building sites suggested by Chief Inspector Kirley, in which no drain need pass beneath any house.

## **VITAL AND MORTAL STATISTICS.**

The estimated population of the Bristol Urban Sanitary District, for the middle of 1896, based upon the Census enumeration of April, 1891 (221,578) is 230,623, the Acreage is 4,538 (Ordnance Calculation), with a density of 50·82 persons per acre.

### **Estimation of Rates.**

The Statistical year 1896 contains 53 weeks, and the rates are consequently calculated upon a proportionately increased population. This extra week has to be added in every 5 or 6 years in order to compensate for the loss consequent upon the Statistical year of the Registrar General usually comprising the returns for exactly 52 weeks, whereas the number of weeks in a year is 52·17747, and thus an appreciable loss occurs amounting to one week in 5·6347 years.

The population of the City had, before the 1891 Census, been considerably over-estimated, owing to the fact that the population did not increase at so great a rate during the intercensal period (1881-1891) as it did during the previous intercensal period (1871-1881). The consequent error amounted in 1891 to as much as 10,199, and as a result the birth and mortality rates for some years appeared lower than was actually the case. For example, whereas the recorded birth and death-rates for 1891 are 30·29 and 20·8 respectively, these rates calculated upon the incorrect estimate would have appeared to be 28·25 and 19·94.

All figures in this report, both for the current year and for previous years, have been revised upon the 1891 Census enumeration.

This table shows the acreage and number of persons per acre for each of the Registration Sub-Districts :—

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Table A.

Showing Population, Acreage, and Number of Persons per Acre (Density) in each of the Registration Sub-Districts of the Bristol Urban Sanitary District, at the Census of 1881, and for the middle of 1891 and 1896.

Registration Sub-Districts.	Acreage.	POPULATION.					
		Census, 1881.	1881, Density.	† Estimated to middle of 1891 on Census	1891 Density.	Estimated to middle of 1896.	1896 Density.
St. Mary Redcliff ...	170	9,602	56·4	9,287	54·6	9,137	53·7
Castle Precincts ...	119	6,768	56·8	5,558	46·7	5,056	42·4
St. Paul ...	148	18,643	125·9	19,046	128·6	19,246	130·1
St. James ...	68	8,420	123·8	7,817	114·9	7,538	110·8
St. Augustine ...	250	14,066	56·2	13,788	55·1	13,653	54·6
Bedminster ...	992	37,741	38·0	45,812	46·1	49,588	49·9
Clifton ...	921	28,702	31·1	29,361	31·8	29,691	32·2
Ashley ...	434	19,106	44·0	24,190	55·7	26,822	61·8
St. Philip ...	744	50,108	67·3	51,650	69·6	52,376	70·4
Westbury ...	692	13,347	19·2	15,540	22·4	17,516	25·3
Bristol Urban Sanitary District: TOTAL	4,538	206,503	45·5	222,049	48·93	230,623	50·82

\* Ordnance Calculation.

† The Census Enumeration is made at the end of the first quarter of the year, whereas the statistical returns are calculated on the increased population estimated to the middle of the year.

It will be noticed that in the old in-parishes of St. Mary Redcliff, Castle Precincts, St. James and St. Augustine, the population is steadily decreasing, partly through absence of room for building extension, and partly through conversion of dwellings into business premises, or demolition for street or other improvements. The most densely populated districts are those of St. Paul and St. James, while the districts of St. Philip, Ashley, St. Augustine and Redcliff also show high density figures.

### Births.

The births registered in Bristol in 1896 were 6,537, of which 205 were returned as illegitimate, a percentage of 3·1.

The birth rate for the year was 27·8, a decrease on the rate of last year, which was 29·02: the rate has since 1881 shown an almost continuous decrease, interrupted by a slight rise in 1889, and again in 1891 and 1893 (Table B). The rate for the 33 great towns in 1896 was 30·7.

The excess of births over deaths during the year 1896 (*natural increase of population*) is 2,577. The estimated *actual increase* from 1895 amounts to 2,484.

### Marriages.

2,645 Marriages took place within the Borough of Bristol during 1895. viz., 863 in the Bristol Union, 1,411 in the Barton Regis Union,\* and 371 in the Bedminster Union divisions of the Borough. The annual marriage rate per 1,000 living is thus 11·4, compared with 10·8 in 1895, 11·5 in 1894, 11·3 in 1893, and 11·6 in 1892.

### Deaths.

3,960 Deaths were registered in the District during the 53 weeks ending 2nd January, 1897, of which 55 or 1·3 per cent. were returned as deaths of illegitimate children. The general death rate for the year, uncorrected for age and sex distribution, is 16·84 per 1,000 living.†

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\*The Barton Regis Returns include the extra Municipal portion of that Union, this makes the rate slightly in excess of the truth.

†As various towns differ much in the sex and age distribution of their population, it is obvious that a town containing a too large proportion of very young or of very old persons, or of males, amongst which classes the death-rate is almost invariably in excess, will compare unfavourably with another town in which the distribution of the population is nearer the average although the death-rates of each successive age period might be precisely similar in the two towns. A correction factor is supplied by the Registrar-General, by which the disparity of age and sex distribution is equalised for the great towns. The factor for Bristol is 1·0447, and multiplying the observed death-rate by this factor, the corrected rate, which is now comparable with the corrected rates for other towns, is 17·59.



### **Infant Mortality.**

Of the 3,960 Deaths, 908 were of infants under one year. The proportion of these deaths to every 1,000 births (Infant death rate) was 135·90.

This rate varied thus :—225·0 in St. James, 163·5 in St. Paul, 160·7 in Castle Precincts, 155·8 in St. Philip, 152·2 in Redcliff, 135·6 in St. Augustine, 119·1 in Bedminster, 116·4 in Ashley, 103·7 in Clifton and 75·6 in Westbury.

In Table B will be seen the annual infant rates in Bristol for the past 20 years. During 1896 the infant mortality ranged in the 33 large towns from 203 in Preston, 199 in Salford, 197 in Birmingham, and 187 in Leicester, to 149 in Halifax, 143 in Bradford, and 135 in Brighton.

### **Mortality at Ages between 1 and 60.**

1,922 Deaths were returned, corresponding to an annual rate of mortality per 1,000 living between these ages of 8·9. The rate for the 33 great towns between these ages was 12·0 in 1893, 10·5 in 1894, 11·1 in 1895 and 10·6 in 1896.

### **Mortality amongst Aged People.**

1,130 Deaths of persons aged 60 and upwards were registered, whose ages averaged 72 years. This number is somewhat less than last year (1,321) and the average age at death is 7 months lower. The rate of mortality amongst persons living at these ages was in Bristol 68·0 and for the 33 great towns was 79·5 in 1893, 64·6 in 1894, 79·4 in 1895 and 67·7 in 1896.

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## Table showing Diminution or Excess of Deaths in 1896, compared with Annual Deaths in 1886-95.

(The corresponding figures for 1895 and the preceding decennium are also shown for comparison.)

CORRECTED FOR INCREASE OF POPULATION.

Diminution in 1895	Excess in 1895	Cause of Death.	Diminution in 1896	Excess in 1896
9	—	Small Pox ... ..	3	—
119	—	Measles ... ..	—	31
43	—	Scarlet Fever ... ..	—	—
—	—	*Typhus ... ..	—	—
—	65	Influenza ... ..	21	—
77	—	Whooping Cough ... ..	48	—
—	4	Diphtheria ... ..	—	7
4	—	Enteric Fever ... ..	7	—
—	43	Diarrhœal Diseases ... ..	—	—
—	52	Cancer ... ..	—	35
63	—	Phthisis ... ..	52	—
—	12	Premature Birth... ..	—	21
—	37	Diseases of Nervous System ... ..	—	6
—	63	Do. Circulatory System ... ..	—	31
95	—	Do. Respiratory System ... ..	136	—
—	7	Do. Urinary System ... ..	10	—
9	—	Childbirth and Puerperal Fever ... ..	5	—
16	—	Violence ... ..	—	8
150	—	All Other Causes ... ..	312	—
585	283		594	139
302		Balance of Diminution ... ..	455	

\* This disease has caused only 1 death in the 10 years, 1886-95, viz., in 1890. The deaths annually due to this cause for these 10 years, are, therefore, represented by the minute figure 0·1, which is too small to affect the balance of diminution and excess.

This table shows, in summary form, the amount of life saved and the amount lost in the year 1896, as compared with the preceding decennium, under each of the more important headings in the list of causes.

The net gain in the year amounted to 455 lives, that is to say, had the death-rate in the year been equal to the average in the preceding decennium, 455 more persons would have died in Bristol than was actually the case.

The Registrar-General has pointed out in the case of London, that the excess shown under certain headings, such as Cancer, and Diseases of the Circulatory System, appears to be part of a general tendency to increase under these headings, which has been noticed for some years past. In Bristol, some increase in Cancer is maintained, and Diseases of the Circulatory System show also an increase of 31 above the yearly decennial average, but both these figures of increase are more satisfactory than in the previous year. The diminution in fatality from diseases of the Respiratory System, is also much more favourable than that noticed last year, and Phthisis shows still a decrease on the decennial average, though this is not so marked as that shown in the figures for 1895.

Of the principal Zymotic Diseases, excess is noticed in the cases of Measles and Diphtheria, and the Diphtheria excess has risen to 7 from 4 in 1895. Diarrhoeal Diseases remain at the average of the preceding 10 years.

The fatality from diseases of the Nervous System shows a satisfactory decline as compared with last year, while Influenza has fallen considerably below the average from its position of marked excess observed in 1895.

Altogether, the figures of the year reflect a very considerable saving of life as compared with those returned in 1895, and with those for the preceding decennium.

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## Vaccination—Pauperism.

### BRISTOL UNION.

*Returns kindly supplied by J. J. Simpson, Esq., Clerk to the Guardians of Bristol Incorporation :—*

*Vaccination.* The most recent available return as to Vaccination is that of 1895; from which it appears that the 1,485 children registered as born during that year, within the limits of the Bristol Incorporation, are accounted for as follows :—

Number successfully vaccinated	1,085	} 1,485
Insusceptible ... ..	5	
Died unvaccinated ... ..	185	
Postponed by Medical Certificate	4	
Removed to Districts, the vaccination Officer of which has been duly apprised ... ..	6	
Cases left and not traceable ...	165	
In abeyance ... ..	35	

The percentage of Children successfully vaccinated out of the total number of births is 73·06, as compared with 71·49 in the previous year, 1894, an increase of 1·57 per cent.

Comparing these results with the latest available return for the whole of England and Wales—that for 1893—it will be found that the percentage of the successfully vaccinated was for that year in England and Wales 72·3 and the percentage of deaths of unvaccinated children, 11·2. In the previous year (1892) the percentages were:—successfully vaccinated, 74·5; died unvaccinated, 10·4. Thus there was a falling off of 2·2 per cent. in 1893 of successful vaccination, compared with the previous year.

The most recent statement as to Vaccination in 1896 is obtained from the account of fees paid to the Vaccination Officers for registering certificates of successful vaccination received by them during the year. The number of certificates so received by them and registered in 1896 was 1,220, but this figure is subject to correction on account of children who, though registered as successfully vaccinated during the year, may have been born in 1895 or in some previous year.

The numbers ascertained in the same manner for previous years were as follow—1895—921: 1894—1,106: 1893—1,283: 1892—1,249: 1891—1,294: 1890—1,299.

*Pauperism.* The cost of relief in the year to Michaelmas 1896, was less than the cost in the year to Michaelmas, 1895, by £116, viz :—

Increase in cost of maintaining Indoor Poor	£137
Decrease       "               "       Outdoor Poor	£253

The lowest number of indoor poor in any week in the year, was 875, and the highest number 1,010.

The lowest number of outdoor poor in any week in the year, was 1,582, and the highest number 1,937.

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*Workhouse Medical Treatment.* During the year the Guardians have, in addition to increasing the Nursing Staff, made a new departure in regard to the Medical Treatment of the inmates, and have appointed a Resident Medical Officer for the Workhouse. A short report from the latter as to cases of various kinds dealt with during the year, is appended hereto :—

## BRISTOL INCORPORATION OF THE POOR.

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### **Disease and Mortality amongst Inmates of the Bristol Workhouse.**

STAPLETON WORKHOUSE,

February 20th, 1897.

*Report of the Resident Medical Officer concerning Vaccination, Small Pox, and Fevers: and the Deaths during the year 1896.*

*Small Pox.* On the 17th March we had an outbreak of Small Pox in the Workhouse, a man aged 41, being found on admission to the Receiving Ward, to be suffering from it. He was at once isolated in the Fever Wards. He had never been vaccinated. He had the confluent form of the Disease and with difficulty recovered. A second case (a man aged 56), not vaccinated, of very bad habits and in poor health, appeared on the 22nd March and eventually died on the 4th April. This case broke out in a very large ward holding about 90 persons and I re-vaccinated everybody in it except one old man, aged 58, who utterly refused to be done, but who eventually had Small Pox in its most confluent form, and on the day the rash appeared wished to be vaccinated, as he felt so ill. This was on the 18th April. There was a third case, a woman aged 50, a female epileptic, whose severe fits made the case more complicated. The latter two recovered.



## AGES.

	Years.		No. of Cases.
Between	100	90	2
"	90	80	14
"	80	70	25
"	70	60	16
"	60	50	15
"	50	40	11
"	40	30	7
"	30	20	3
"	20	10	2
"	10	2	1
"	2	1	1
Under	1	Year	5
Total	...	...	102

*Causes of Death.*

Brain Disease	...	...	20
Heart Disease	...	...	9
<i>a</i> Lung Disease	...	...	19
Bowel and Liver Disease	...	...	4
Senile Decay	...	...	27
<i>b</i> Cancer of an Organ	...	...	10
Blood Poisoning	...	...	1
<i>c</i> Acute Fevers	...	...	5
Inquest Cases	...	...	3
Gangrene	...	...	1
Debility from Birth	...	...	3
Total	...	...	102

*a*Phthisis, 8 Males, 3 Females Total 11.

*b*Cancer, 6 Males, 4 Females. Total 10.

*c*Acute Fevers—Small Pox, Typhoid, Scarlet Fever, Measles, Acute Diarrhœa—one each.

ROBERT H. NORGATE,  
*Resident Medical Officer.*



**BARTON REGIS UNION.**

*Returns kindly supplied by C. H. Hunt, Esq., Clerk to the Guardians.*

The most recent complete Vaccination returns available are those for the year, from January 1st to December 31st, 1895, inclusive, and from 1st of January to 30th June, 1896, inclusive, from which it appears that the 9,039 children born during the 18 months, are accounted for as follows :—

Number successfully vaccinated	6,293	} 9,039
Insusceptible ... ..	57	
Had Small Pox ... ..	0	
Dead—unvaccinated ... ..	881	
Postponed by Medical Certificate	566	
Removed to Districts, the Vaccination Officer of which has been duly apprised ... ..	149	
Cases left and not traceable ...	651	
In abeyance (30th June, 1896)...	442	

The percentage of children successfully vaccinated out of the total number of births is 69·6, and the percentage of deaths of unvaccinated children to total births is 9·7.

*Pauperism.* The cost of relief during the year to Michaelmas, 1896, was as follows :—

In maintenance ... ..	£10,090	5	9½
Out-relief (including non-resident and boarded-out Paupers) ...	£18,806	1	5½
Lunatics in Asylums ... ..	£12,423	11	3½
Paupers in Hospitals, &c....	£735	19	3½

**EXTENSION OF CITY BOUNDARIES.**

On November 1st, 1895, the District of Avonmouth, formerly in the Barton Regis Union of the County of Gloucester, was included in the City of Bristol by the Bristol Extension Act, 1895. Particulars as to population,

etc., were given in the 1895 Report of the Chief Inspector of Nuisances, and the births and deaths will be found in the "Analysis of Births and Deaths," at the end of this Report. Avonmouth is included for Registration purposes in the Registration Sub-District of Westbury.

## **PREVALENCE OF SICKNESS—1896.**

### **Cholera—Choleraic Diarrhœa.**

One case of Choleraic Diarrhœa was notified on June 1st in a man of 55, who died after 40 hours' acute illness. He was in bad health, and had been ailing for some time with Bronchitis and Asthma. The case was dealt with as possibly infectious, and nothing further occurred.

### **Diarrhœa—Infantile Diarrhœa.**

The number of deaths returned as due to Diarrhœal Diseases during the year was 106, of which 85 were of infants under 1 year, 13 of children between 1 and 5, none at ages between 5 and 25, 5 of persons between 25 and 60, and 3 of persons aged 60 and upwards.

The deaths by quarters occurred thus:—

1st Quarter	...	...	...	...	6
2nd	„	...	...	..	13
3rd	„	..	...	...	79
4th	„	...	...	...	8

### **Diphtheria. Membranous Croup.**

During the 53 weeks of 1896, 241 cases were notified as Diphtheria, and 17 as Membranous Croup, a total of 258 under these two headings, as compared with 165 during the previous year

The number of deaths returned from both causes was 38, compared with 34, 50, 53, 38 and 16 during the five previous years. The local incidence of this disease, and the case mortality in the sub-districts in the City, are shown in the following table:—

### DIPHTHERIA, MEMBRANOUS CROUP.

Sub-Districts	Redcliff.	Castle Precincts	St. Paul.	St. James.	St. Augustine	Bedminster.	Clifton.	Ashley.	St. Philip.	Westbury.	Public Inst.	Bristol—City.
Population ...	9,137	5,056	19,246	7,538	13,653	49,588	29,691	26,822	52,376	17,516		230,623
Cases Notified	25	5	17	10	9	68	28	25	31	26	14	258
Incidence rate of attacks per 1000 population ...	2.7	0.9	0.8	1.3	0.6	1.3	0.9	0.9	0.5	1.4		1.1
Deaths ..	1	0	5	1	1	14	2	2	5	2	5	38
Percentage of deaths to cases (case mortality).	4	0	29	10	11	20	7	8	16	7	...	14.7

From this table it appears that 38 deaths occurred from Diphtheria and Membranous Croup amongst 258 notified cases in the whole City, giving a case mortality of 14.7 per cent., and a death rate from these causes of 0.16 per 1,000 living. The number of deaths in this year shows an increase in the Diphtheria mortality compared with that of last year, which corresponded to a rate of 0.14, and is also in excess of the average rate for the past 10 years, which was 0.13.

It compares, however, favourably with the rate in the 33 great towns for 1896, which was 0.38

### **Bacteriological Examination in Diphtheria.**

The table which follows shows particulars of the cases in which a Bacteriological Examination was made. Cultures supplied by the medical attendants, through whose kindness I have also been able to trace the subsequent clinical history of many of the cases.

Of those 83 cases, in which the examination gave positive result, 12 died, giving a case mortality of 14·4 per cent.; 18 others, or 25·8 per cent. of the remainder passed through very severe attacks, 8 with marked paralytic symptoms, and 4 in whom tracheotomy or intubation became necessary. Thus, in 30 out of 83 such cases, (36 per cent.) death or severe illness resulted.

Of the 123 other cases in which the examination gave negative result (83 of which were notified on the clinical symptoms, and 40 were examined only on suspicion) 4 died, giving a case mortality of 3·2 per cent., and 11, or 9·2 per cent. of the remainder passed through attacks clinically determined to be diphtheria, including 4 in which paralytic symptoms supervened, and 2 in which tracheotomy was necessary. Seventeen cases were withdrawn subsequently on the clinical symptoms clearing up, as not having suffered from diphtheria, and recovery in the other cases appears to have been uninterrupted.

These results are only fairly satisfactory, and it remains to be explained how in 12 per cent. of the cases examined the bacteriological test proved unreliable.

The error may arise in two chief ways:—First, the specific bacillus, although present in the throat may, by error in manipulation, fail to be transferred to the culture medium: and secondly, although present on the medium, its growth and presence may fail to be detected through error in the medium, or fault of observation.

**Cases Bacteriologically Examined.**

206 (166 notified, 40 not notified).

	NOTIFIED CASES. 278 (20 withdrawn.)		NOT NOTIFIED.	
	Bacteriologically Examined 166		Not Examined	Examined on suspicion.
	Positive Result	Negative Result		Negative Result
Total	83	83	112	40
Withdrawn	0	17	3	—
Recovery Uncomplicated	29	31	—	—
Recovery after severe attack	18	11	—	—
No further infor- mation as to pro- gress of case	24	20	—	—
Died	12	4	22	—

*Examination of Secondary Cultures.* In 42 instances where a positive certificate had been given, the management of the patient as regards isolation was regulated by the bacteriological reports, an improvement upon last year, when only 19 cases were so regulated. In 27 cases 2 examinations were made, in 11 cases 3, in 3 cases 4, and in 1 case 5 examinations, extending over a month, before the throat was found to be free of the "Löffler Bacillus."

Of the former possibility one very striking example occurred (case 199). This culture was received in the Laboratory on February 23. On receiving it, it was observed that the cotton swab, with which the throat rubbing is taken and inoculated upon the sloped agar

surface, had a shred of membrane and a spot of blood upon it, and as the age of the patient (5 years) was favourable to diphtheria, a control inoculation was made from the stained portion of the swab, and with the membrane, upon 4 other agar tubes of exactly the same batch as the culture returned (the culture medium used is Nutrient-agar Broth Jelly, prepared according to Klein's method), and in 18 hours all the tubes were inspected and cover-glass specimens examined. The supplied culture showed a free growth of colonies of staphylococci and other throat organisms, but no diphtheria colonies were recognisable, and careful microscopical examination failed to detect a single diphtheria bacillus. On the other hand, the 4 control tubes each showed easily recognisable free-growing colonies, and microscopically these yielded practically pure cultures of diphtheria, of the large variety, and typical in every appearance.

The case, which ran a very severe course, necessitating tracheotomy, would undoubtedly have been negatively certified, had not the control inoculation, which is now made in every instance, proved the presence of the diphtheria bacillus in large numbers.

The explanation of this case is sufficiently simple. The throat must have been rubbed with one side of the swab, while the medium was inoculated with the opposite side, and care to roll round the swab while making the inoculation would have prevented the error.

In other cases where the organism fails to be transferred to the culture medium, it may be due to the situation of the diphtheritic mischief low down in the respiratory tract out of reach of the swab; or to the recent use of antiseptic gargles or applications to the throat, by which the proper development of the organism may be inhibited, or the growth may be washed off the exposed surfaces, although it remains beneath the adherent membrane in places which the swab fails to reach.



Another case of equal interest occurred early in the year. A well-marked clinical case of diphtheria was notified on Jan. 25th in a girl aged 12, but a culture forwarded by the medical attendant gave a negative result. Subsequently 5 other cases developed in the same house, all clinically well-marked diphtheria, and of these cases one died. With the permission of the medical attendant your assistant Medical Officer of Health visited the house and took two further cultures on 27th Jan., but in each instance the result was negative. The medium used was found to be in good order, and no explanation of the series of cases can be advanced.

If the bacillus is once inoculated upon a medium which is in good order and incubated at the proper temperature for 18 hours, the risk of failure to detect it should be extremely slight.

The difficulty is, however, very generally recognised, and at a meeting of the Metropolitan Asylums Board in Feb., 1897, Dr. Goodall pointed out with regard to the diagnostic value of a bacteriological examination that it is not sufficiently reliable, especially if only one examination is made, and Dr. Gayton confirms this opinion, pointing out that the conclusion from a preliminary bacteriological examination cannot be considered final, as sometimes bacilli are not found until after three or four examinations; while Dr. MacCombie only claimed that "Diphtheria can, *as a rule*, be definitely excluded by bacteriological examination *within a few days* of admission."

It must, of course, be conceded that a negative result is of very limited value, especially in the face of strong clinical evidence; a point very strongly insisted upon in all negative certificates issued from this office; extreme care at every point of the procedure should, however, materially tend to diminish the percentage of error, though a single negative result can never be regarded as in any sense conclusive.



The deaths returned as due to Diphtheria, in Bristol during the sixteen years 1881—96, are here shown, together with the death rate from this cause for the same series of years in Bristol and in the 33 great towns:—

	1881	1882	1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	1894	1895
No of Deaths	10	8	13	19	25	28	23	26	15	16	16	38	53	50	34
Population	207,229	208,007	209,522	211,048	212,586	214,134	215,694	217,266	218,848	220,442	222,049	223,592	225,146	226,578	228,139
Annual death rate per 1,000 living—Bristol	0.04	0.03	0.06	0.09	0.11	0.13	0.10	0.11	0.06	0.07	0.07	0.16	0.23	0.22	0.1
33 Great Towns	0.14	0.10	0.16	0.17	0.17	0.16	0.18	0.21	0.26	0.24	0.21	0.27	0.43	0.38	0.3

In 17 houses multiple cases of Diphtheria occurred: 14 houses had two cases, one house had 4, and two houses had 6.

Fifty-two houses, in which Diphtheria was notified, were found to have foul or defective closets or drains, or other insanitary conditions, and these conditions were duly rectified. No widespread outbreak traceable to any common cause, school association, or other conditions, occurred during the year, and the cases were distributed through the months as follows:—

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Cases	19	24	27	29	26	19	13	19	21	25	14	22
Deaths	4	4	6	4	3	1	1	2	4	4	2	3

### SMALL POX

The last case of Small Pox in 1894 occurred on the 9th July, after which for 14 months the city was free from the disease.

On Sept. 16th, 1895, a Tramp was reported as suffering from the disease at the Long Ashton Union Workhouse at Bourton. Enquiry showed that he had travelled down in

search of work from North Wales through Shrewsbury, Hereford, Merthyr Tydfil, Pontypool, Ashchurch, Gloucester, Thornbury and Bristol to Bourton.

In November three cases occurred at Barton Regis Workhouse, one of which was admitted to the City Small Pox Hospital on Nov. 22nd., the other cases were isolated by the Stapleton Urban District Council. On Dec. 19th a fresh case occurred in St. Philip's Marsh, and on Dec. 21st a further case, traced directly to Cardiff, occurred in the City.

Enquiries made in connection with the Workhouse cases showed the existence of the disease during the last months of 1895 at Gloucester, Newport, Monmouth and Ledbury (among hop pickers), and the affected tramps apparently contracted the infection at one or another of these places.

Upon the occurrence of these cases in November, warning circulars as to the diffusion of Small Pox were issued from this Office to all the Unions in Gloucestershire, Somersetshire, and Wiltshire, and also to local Medical Practitioners.

These cases of the fall of 1895 were, as it subsequently proved, but the forewarnings of increasing danger from a focus shortly to be set up in Gloucester, from which during the first six months of 1896 repeated introductions took place not into Bristol only, but into many neighbouring districts.

In preparation for the epidemic, as soon as it was perceived that the danger of infection from Gloucester was urgent, 50 beds were set apart at Nover's Hill, but St. Philip's Hospital came into use for the first 12 cases, while Nover's Hill was cleared as rapidly as possible of scarlet fever, an administrative difficulty which will be removed upon the completion and occupation of the separate Ham Green site for fever.

Thirty-six cases occurred in the City during the year, and 6 more were admitted to the City Hospitals or the Workhouses from the County, making a total of 42.

The first case of 1896 was an isolated one, notified on Jan. 11th, the origin of which was untraced.

Then, suddenly, in one of the common lodging houses which were being well watched, a case sickened on 20th February, and within two days eight other persons in this lodging house also sickened, the whole 9 no doubt infected by some passing tramp, recovering probably from a mild unrecognised attack, who had stayed in this lodging house about a fortnight previously. Very careful attention limited the resultant cases in the common lodging houses to 7, making a total of 16 in connection with these houses, out of the 36 comprising the City cases.

Seven other cases were clearly traced to direct introduction from the infected Gloucester area, 1 a servant who came direct from Gloucester to a situation in Clifton, 1 a porter on the line, 1 a bargeman on a Gloucester trow, 1 a visitor just returned from the Gloucester district, and 3 in the family of a carpenter lately employed on the Gloucester Small Pox Hospitals, where he himself had been free from Small Pox, but whose tools were handled by a mate with unwashed hands still greasy from the anointing of a home-nursed child sick of Small Pox. Perceiving the risk, though not all of it, he declined further work, and came back to his home in Bristol, to his vaccinated wife and two unvaccinated children, aged 9 and 3, who habitually played with the tools. Both the children contracted confluent Small Pox, the younger died: and the wife subsequently sickened of a trivial attack.

Beyond these, 1 case arose from the St. Philip Hospital, 1 from the Stapleton Hospital, and 1 from the Bristol Workhouse.

Thus 26 out of 36 cases had their origin fairly clearly traceable to tramp or other infection from Gloucester, the remaining 12 occurred in scattered parts of the City, and were not definitely traced.

There was some fear, upon the first outbreak in the common lodging house, that the disease had gained serious hold, but the same vigilant search which picked out the 9 actual cases, and the stringent enforcement of daily returns and systematic visiting, succeeded admirably in keeping the disease under control in these houses.

Over three thousand visits were paid to the Common Lodging Houses during the enforcement of these precautions.

At no other time did the Disease show any sign of escaping control, and the recurring introductions were easily dealt with. The last case in the City occurred on June 20th, and as the Gloucester focus had by this time subsided under the stringent enforcement of vaccination, further danger to this City was at an end.



## Small Pox in Bristol, 1896.

	CASES.								DEATHS.								Total Deaths.	Percent- age of Deaths to Cases
	Age Periods.				Age Periods.				Age Periods.				Age Periods.					
	0-10	10-15	15-30	30 +	0-10	10-15	15-30	30 +	0-10	10-15	15-30	30 +	0-10	10-15	15-30	30 +		
Number of Marks, 1	Dis.	Con.	Dis.	Con.	Dis.	Con.	Dis.	Con.	Con.	Hem.	Con.	Hem.	Con.	Con.	Hem.	Con.	Hem.	
"	1	—	1	—	1	—	2	1	—	—	—	—	—	—	—	—	—	—
"	—	—	1	—	2	—	6	—	—	—	—	—	—	—	—	—	—	—
"	—	—	2	—	2	1	3	2	—	—	1	—	—	—	—	—	—	1
"	—	—	3	—	5	—	2	—	—	—	—	—	—	—	—	—	—	12.5
Unvaccinated	*1	—	—	—	—	—	—	—	1	—	—	—	—	—	—	2	—	3
Stated to be vaccinated—no marks	—	—	—	—	—	—	—	3	—	—	—	—	—	—	—	—	1	75.0
No information	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	1
Re-vaccination previous to con- tracting Small Pox	—	—	2	—	—	—	1	—	—	—	—	—	—	—	—	—	—	1
Previous Small Pox ( Unvaccinated Vaccinated	—	—	—	—	—	—	—	1 <sup>3</sup>	—	—	—	—	—	—	—	—	—	—
	2	2	2	0	12	1	15	8	—	—	—	—	—	—	—	2	1	5
	4	2	2	13	23	—	—	—	1	0	1	3	—	—	—	—	—	11.9

\* Nursed by Mother who had Small Pox, vaccinated after her removal to Hospital. † One of these was Vaccinated after removal of his brother to Hospital, but sickened next day. 3 This woman had Small Pox severely 19 years before when it destroyed her left eye.

## **The Gloucester Small Pox Epidemic, 1896.**

### *Vaccination in Gloucester.*

Between 1886 and 1895.—15,682 children were born in Gloucester, of whom 3,176 died. Of the remaining 12,506 only 2,378 were vaccinated in these 10 years, leaving a balance of 10,128 unvaccinated children. The population in Gloucester being 42,000, it is obvious that in the year 1895 one quarter at least of the whole population was unvaccinated, and living at the most susceptible ages between 0 and 10 years.

In 1895 Small Pox was introduced into Gloucester, but gained no particular headway, only 30 cases occurring in the city and suburbs during the whole of that year. Towards the end of the year the non-recognition of a case of Small Pox, mistaken for measles, in an unvaccinated child, helped to establish the disease.

In the month of January alone the number of notified cases reached 50, increasing to 146 in February, 644 in March, and 744 in April, in which month, on two consecutive weeks, the weekly notifications exceeded 200, after which the epidemic steadily declined.

In addition to the 10,128 unvaccinated children, there were at least 20,000 older persons who were more or less imperfectly protected by the fading of the protection conferred by their infant vaccination, and by absence of re-vaccination. As the epidemic continued to spread, special means were therefore taken in April to secure, so far as was possible, the vaccination of the whole city, and upwards of 36,000 persons were vaccinated or re-vaccinated within a few weeks. Though a certain number of adults still held out, the great majority of the children were vaccinated. The rapid increase of attacks which was going on up to the end of April, and had reached 1,580 cases was arrested, the epidemic began to be brought under control, and by the end of July it was at an end.

During this epidemic, out of 42,000 persons, 2,000 were attacked in 6½ months, 400 of them fatally. The population of Bedminster is 49,588, and an epidemic of equal severity would have meant, in this sub-district alone, 2,361 cases and 472 deaths: or would have implied in the City of Bristol 10,982 cases and 2,196 deaths from Small Pox in less than seven months, or more than one half our total annual deaths from all causes.

The attack rate upon the Gloucester population amounted to 1 in every 20·6 of the population, or approximately 5 per cent. If the epidemic had lasted for a much longer time than it did, this proportion would have been a sufficiently severe one: but when it is remembered that its intensity was concentrated in a period of a few months, it appears that its severity exceeded that of any British Epidemic of modern times.

The Gloucester Epidemic showed, as might have been expected, an immense preponderance of attacks upon the unvaccinated children under 10 as compared with the vaccinated, and a still more marked preponderance of deaths.

ATTACKS.	Unvaccinated	Vaccinated in Infancy.	Uncertain.	Total.
Under 10	699	23	1	723
Over 10	90	1,185	37	1,312
Total ...	789	1,208	38	2,035
DEATHS.				
Under 10	281	0	0	281
Over 10	32	113	17	162
Total ...	313	113	17	443

Thus of 789 unvaccinated persons of all ages attacked 313 died, or more than 1 in every 3 attacked: while of 1,208 vaccinated persons of all ages attacked, only 113 or less than 1 in 10 died.

But of those attacked at ages under 10, when the protection of successful infantile vaccination is most marked, while of 699 unvaccinated children attacked, no less than 281 died or more than 1 in every  $2\frac{1}{2}$  attacked: of 23 children vaccinated in infancy who were attacked, not one died.†

### **Report of the Royal Commission on Vaccination.\***

The final Report of this Commission was issued during 1896, signed by eleven of the thirteen Commissioners: the conclusions are of direct interest to this City, in view of the fatal and threatening epidemic so recently prevalent in Gloucester.

With regard to the protective influence of Vaccination against Small Pox, the Commissioners are of opinion:—

- 1.—That it diminishes the liability to be attacked by the disease.
- 2.—That it modifies the character of the disease, and renders it (*a*) less fatal, and (*b*) of a milder or less severe type.
- 3.—That the protection it affords against attacks of the disease is greatest during the years immediately succeeding the operation of Vaccination. It is impossible to fix with precision the length of this period of highest protection. Though not in all cases the same, if a period is to be fixed, it might fairly be said to cover in general a period of nine or ten years.

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†For a full Report of the Gloucester Epidemic, consult “The Story of the Gloucester Epidemic of Small Pox. By Francis T. Bond, M.D., B.A., The Jenner Society, Gloucester. 6d. Also a paper in the April number of “Public Health,” 1897, by Dr. Campbell, M.O.H., Gloucester.

\*VACCINATION COMMISSION—Final Report of the Royal Commission appointed to enquire into the subject of Vaccination. Eyre & Spottiswoode, London, 1896, price 1/10. Conclusions and Recommendations of the Royal Commission on Vaccination. Manchester; “Poor Law Officers’ Journal,” 10 Queen Street, 6d.



- 4.—That after the lapse of the period of highest protective potency, the efficacy of Vaccination to protect against attack rapidly diminishes, but that it is still considerable in the next quinquennium, and possibly never altogether ceases.
- 5.—That its power to modify the character of the disease is also greatest in the period in which its power to protect from attack is greatest, but that its power thus to modify the disease does not diminish as rapidly as its protective influence against attacks, and its efficacy during the later periods of life to modify the disease is still very considerable.
- 6.—That re-vaccination restores the protection which lapse of time has diminished, but the evidence shows that this protection again diminishes, and that, to ensure the highest degree of protection which Vaccination can give, the operation should at intervals be repeated.
- 7.—That the beneficial effects of Vaccination are most experienced by those in whose case it has been most thorough, and it may fairly be concluded that where the vaccine matter is inserted in three or four places it is more effectual than when introduced into one or two places only, and that if the vaccination marks are of an area of half a square inch, they indicate a better state of protection than if their area be at all considerably below this.

It must, furthermore, not be lost sight of, that the Recommendations of the Commissioners, whether they are likely to secure that end or not, are avowedly made with the object of continuing and extending the practice of Vaccination and the protection it affords, at less risk of offending private prejudice: nor that, while the two

dissentient Commissioners do not sign the Majority Report, they do not deny the protective power of Vaccination, but merely content themselves with a statement that, in their opinion, this protective power, which they allow to exist, has been exaggerated.

### **Erysipelas.**

During the year 246 cases of Erysipelas were notified, and 10 deaths were returned, compared with 195 cases and 6 deaths in 1895.

The enquiries made into these cases have resulted in the discovery of 31 houses where various sanitary defects required attention: but I am still unable to attach any special value to the notification of Erysipelas, and consider that it might conveniently be omitted from the list of notifiable diseases.

### **Scarlet Fever or Scarlatina.**

The number of cases of this disease notified and confirmed during the 53 weeks of 1896 was 1,352 compared with 562 in 1895, 485 in 1894, 1,245 in 1893, with 1,442 in 1892, and with 888 cases in 1891; and the number of deaths returned was 59 compared with 16 in 1895, 16 in 1894, 35 in 1893, with 47 in 1892, and with 37 in 1891.

The percentage of deaths to cases in the whole City was 4·3 compared with a case mortality of 2·8 in 1895, of 3·2 in 1894, of 2·8 in 1893, of 3·2 in 1892, and of 4·1 in 1891. The distribution of attacks by age is shown below:—

Under 5 years	...	...	427
5-10	„	...	509
10-15	„	...	229
15 upwards	...	...	187
Total			1,352

This table shows the incidence rate of the disease upon the registration sub-districts, and the percentage of deaths to cases for each sub-district and for the whole City.

### SCARLET FEVER.

Sub-Districts	Redcliff.	Castle Precincts	St. Paul.	St. James.	St. Augustine	Bedminster.	Clifton.	Ashley.	St. Philip.	Westbury.	Public Inst.	City.
Population ...	9,137	5,036	19,246	17,538	13,653	49,588	29,691	26,822	52,376	17,516		230,623
Cases notified	48	25	75	67	71	371	255	129	216	82	13	1352
Incidence rate of attacks per 1,000 population ...	5.2	4.4	4.9	3.8	5.2	7.4	8.5	4.8	4.1	4.6	—	5.8
Deaths ...	5	1	5	3	2	19	9	3	11	—	1	59
Percentage of deaths to cases (case mortality.)	10.4	4.0	6.6	4.4	2.8	5.1	3.5	2.3	5.0	0.0	—	4.3

The heaviest incidence of the disease was upon the sub-districts of Clifton, Bedminster, Redcliff, and St. Augustine, and the heaviest fatality in Redcliff, St. Paul, Bedminster, and St. Philip.

The notification figures for the four quarters are as follow :—

1st quarter	...	...	...	363
2nd	„	...	...	341
3rd	„	...	...	295
4th	„	...	...	353
Total	...	...	...	1,352

No widespread extension has been traced during the year to schools, or to milk contamination; but in every case notified, the attendance of school children from infected houses has been controlled until after recovery of the patient and disinfection of the premises.

The number of cases of Scarlet Fever isolated in the Sanitary Authority's Hospitals during the year has been \*515; 23 were removed by the Guardians, and 17 were admitted into the Children's Hospital isolation wards.

### **Hospital Isolation in Scarlet Fever.**

The use of isolation in combating the spread of communicable disease has in this City followed on the usual lines. Hospitals were primarily resorted to at epidemic times only, in dealing with an unusual prevalence of Typhus, Cholera, or Small Pox, were provided by the Board of Guardians, and were used as "nursing" rather than as "preventive" institutions: it is only in quite recent years that the Sanitary Authority has recognised the undoubted advisability of having the isolation of all communicable cases, whether in paupers or non-paupers, under one control.

As Typhus and Cholera have of recent years been absent from the City, Small Pox and Scarlet Fever have, since 1866, called for most attention. The insufficiency of Hospital accommodation has hitherto stood in the way of any effectual attempts to deal with Scarlet Fever, or other Fevers, but the success met with in dealing with Small Pox of late years has encouraged your Committee to provide permanent accommodation for Fever also.

In the meantime, the extension of your temporary accommodation on Nover's Hill and at Clift House (under pressure of Small Pox in 1893-94) has enabled your Committee to make a somewhat more extended attempt to deal with Scarlet Fever during its epidemic prevalence in

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\* Eight cases were admitted to Clift House and 6 to Nover's Hill from adjoining districts.



1895-96 ; and in 1896, 515 patients were isolated, or more than double the number in any previous year (220 in 1895, 156 in 1892, 137 in 1891).

The deaths from Scarlet Fever during this epidemic year showed a rate per 100,000 population of 25, comparing very favourably with the epidemic rates in previous years when isolation in Scarlet Fever was quite unknown, thus the epidemic of 1886 and 1887 furnished rates of 40 and 96, that of 1881 and 1882 rates of 74 and 36, that of 1879 a rate of 45, and that of 1875 and 1876 rates of 250 and 143 per 100,000 respectively.

But the accommodation will not meet the demand until the completion of the full hospital scheme, and during 1896 only 515 out of a total number of 1,352 cases, or only 37 per cent. of the cases could be isolated. I trust our accommodation, when this disease is next epidemic, will allow of our isolating at least 80 per cent. of the cases, and if this can be done early in the epidemic, it should materially lessen the total number to be dealt with.

The isolation already secured, although so limited in amount, and carried on under serious disadvantages, has been successful as an experiment, and has shown that the prejudice against isolation amongst the working classes with limited house-room, for which classes the greatest good is secured, is rapidly breaking down, and applications for admission to Hospital are becoming more and more frequent.

The death-rate at the Hospitals has been satisfactorily low, amounting to a case mortality of 3·6 per cent., compared with a case mortality among home-nursed cases of 5·0 per cent.

*Return Cases of Scarlet Fever.*—With the extension of Hospital isolation in Scarlet Fever your Committee is being brought face to face with a new source of trouble.

The occurrence of a “return case” of Small Pox, following the discharge of a patient from the Hospital, is unknown

within our experience. It is far otherwise with Scarlet Fever, and it is the experience of all isolation Hospitals, however well administered, and however carefully supervised the disinfection of the patient and his belongings upon discharge, that a proportion varying from 1 or 2 per cent. to 5 or 6 per cent.\* of the patients sent home appear to give rise by infection to other cases within a few days of their return. The proportion in our Hospitals during 1896 has averaged 3.1 per cent. In the consideration of these cases, those arising at a later period than three weeks after the return of a patient are excluded, as probably due to external infection.

The cause of these return cases is but little understood; until quite recently they were ascribed to mismanagement pure and simple, but recent observation negatives this; the condition of desquamation in late periods of convalescence appears to exert little or no influence, and indeed desquamation can no longer be accepted as a reliable index of the presence or absence of infection: it is more than likely that the retention of a patient for the necessarily long period of convalescence in an infected ward affords opportunity for re-infection: and that, especially within the mucous folds of the nose, a patient quite well in himself, may convey an appreciable amount of infection home. Any nasal or ear discharge, or any inflammatory condition of the mucous membrane, or of the skin, are in consequence looked upon with much suspicion, and are probably often instrumental in producing secondary cases. The necessity for ample cubic space and ventilation in the treatment of Scarlet Fever, and the advisability, where possible, of a week or a fortnight's sojourn in a Convalescent Hospital, before returning home, are obvious, though the latter desideratum would need largely increased Hospital accommodation.

The important fact is this, that in spite of extreme care, a variable but small amount of re-infection (very small in

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\* See Dr. Boobyer's paper in "Public Health" for June, 1896, Vol. VIII., No. 9, p. 290, also the late Mr. T. W. Thompson's paper read before the Epidemiological Society, Nov. 15th, 1895. Transactions. New series. Vol. XV., session 1895-96.

comparison with home infection), may and does habitually occur after Hospital treatment, and I have brought the matter prominently before your Committee that you may recognise fully all the responsibilities incurred by extension of Hospital isolation.

### **Typhus Fever.**

No case of Typhus Fever was reported in the City during the year. The last known cases of this disease occurred in the winter of 1889-90, the disease was strictly localised to a small group of houses, and resulted in 5 cases and 1 death. (*See Report for 1889*).

### **Enteric Fever.**

During the year 110 cases were notified as Enteric Fever, compared with 89 cases during 1895, 90 cases during 1894, and 122 cases during 1893.

The number of cases shows an increase upon the previous 2 years, while the deaths are less, as will be seen from the following table:—

Years.	Cases Notified.	Deaths.
1890	122	33
1891	116	23
1892	135	18
1893	122	26
1894	90	21
1895	89	22
1896	110	20

The yearly deaths for the past 10 years in the City have averaged 26, so that the year's mortality is below the average, though still in excess of the low years 1892 and 1885, when only 18 and 16 deaths were respectively returned.

The prevalence and fatality of the disease in each quarter of the year is shown here.

1896.		Cases.	Deaths.
1st Quarter	...	34	3
2nd Quarter	...	34	8
3rd Quarter	...	21	2
4th Quarter	...	21	7
		110	20

This table shows the cases of Enteric Fever notified in each sub-district, as well as the attack rate per 1,000 population, and the case mortality:—

### Enteric Fever.

Sub-Districts	Redcliff.	Castle. Precincts.	St. Paul.	St. James.	St. Augustine.	Bedminster.	Clifton.	Ashley.	St. Philip.	Westbury.	Publ. Inst.	Bristol City.
Population ...	9,137	5,056	19,246	7,538	13,653	49,588	29,691	26,822	52,376	17,516		230,623
Cases notified	3	1	12	0	2	32	12	7	26	9	6	110
Incidence rate of attacks per 1000 popula- tion ..	·32	·19	·62	0	·14	·64	·40	·26	·49	·51	..	·47
Deaths ..	2	0	2	0	1	3	5	1	1	3	2	20
Percentage of deaths to cases (case mortality.)	66·6	0	16·6	0	50	9·3	54	14·2	3·8	33·3	...	18·1



Enteric Fever is admitted into the Public Institutions and into the Guardians' Hospitals for treatment, and 45 cases (6 from outside the city) were nursed in the Royal Infirmary, General Hospital and Children's Hospital during the year. There are at present very few beds available for this disease in your Authority's Hospitals, a deficiency shortly to be made good in the new Hospitals.

The enquiries made into the sanitary condition of houses in which Enteric Fever appeared, disclosed 32 in which the drainage or other sanitary arrangements were defective and received attention.

As noticed in previous years, polluted water played but a very small part in the dissemination of the disease. In 2 cases only, pump or well water was in use at the affected houses; the water from these was analysed, and in 1 case was found to be impure; steps were taken to secure the provision of a pure supply. In the other case the water was found to be of a fairly satisfactory quality.

The cases occurring in the City were, as a whole, isolated ones, and no widespread epidemic at any time took place. In 6 instances, however, multiple attacks occurred in the same house, affecting 2 inmates in five houses, and 4 inmates in one house.

In 7 instances, persons sickened shortly after returning home from visits or voyages, during which, it appeared reasonable to the Medical attendant to suppose, they had contracted the disease.

### **Measles**

The deaths from Measles numbered 143, compared with 8 during last year, 116 in 1894, 25 in 1893, 105 in 1892 and 239 during 1891, the last epidemic year.

Of the 143 deaths, 135 were of children under 5.

I have discussed in previous reports the question whether Measles should or should not be included amongst Notifiable Diseases. On the one hand its early infectivity and rapid

spread appear to preclude the possibility of effectually controlling its epidemic prevalence by the usual means of Hospital isolation and disinfection, while the enormous bulk of cases during any wide prevalence would render complete Hospital isolation of all cases impossible without very ample ward accommodation. On the other hand Measles is undoubtedly a regularly recurring cause of immense mortality, much of which might be prevented by careful nursing during the stage of convalescence: and if many deaths are in this way preventable, it would appear to be a public duty to strive to do so.

On the whole, and with present available means of Isolation, the control of school attendance would appear to be the most hopeful method of procedure, and in this way heads of schools can most effectually further the efforts of your Authority by giving information of cases, and of families known to be affected. The time for Notification does not seem to be ripe in this City until our Hospital accommodation is actually more commensurate with our requirements. When this is so, I shall endeavour to advise your Committee as to the best method of utilising our preventive means.

### **Whooping Cough.**

The deaths from Whooping Cough numbered 64, compared with 45 in 1895, 177 in 1894, 80 in 1893, with 154 in 1892, 53 in 1891, and 201 in 1890.

Of the 64 deaths, 63 were of children under 5.

The heaviest mortality (27) occurred during the fourth quarter of the year: 6 deaths occurred during the first quarter, 16 during the second, and 15 during the third quarter.

The disease was most fatal in Bedminster (34), Clifton (10), and St. Philip (9).

The mortality in this disease is largely due, as in the case of Measles, to the want of care exercised during the course of the disease, to avoid exposure to inclement wind and weather.

### Influenza.

This disease caused 19 deaths during the year, compared with 95 in 1895, 26 in 1894, 68 in 1893, and 45 deaths during 1892.

The disease was chiefly prevalent during the first quarter of the year, and the figures for the four quarters are 10, 4, 0 and 5 respectively.

### Phthisis (Pulmonary Consumption).

The deaths from this disease form no inconsiderable proportion of the total deaths, and from year to year nearly approach and occasionally exceed the fatality of the seven principal Zymotics grouped together:—

	1887.	1888.	1889.	1890.	1891.	1892.	1893.	1894.	1895.	1896
Phthisis... ..	332	333	326	413	382	372	363	332	317	320
Seven Principal Zymotics]	664	292	500	482	426	461	363	457	268	435

I have in previous reports pointed out that there appears to be no valid reason for the continued existence of this fatal scourge in anything like its present proportions, if to the medical treatment of its symptoms and results, were added some intelligent preventive treatment on the part of the patient.

Isolation in Hospital, with the precautions as to exposure and disinfection, are certainly not applicable in the circumstances of Pulmonary Consumption, but *Notification* of the disease might reasonably tend towards the universal adoption of simple precautions, and would ensure the periodical and thorough disinfection of infected rooms and houses, especially after death, a point of no little importance in the social history of the disease.

I am, Gentlemen,

Your Obedient Servant,

D. S. DAVIES, M.D.,

*Medical Officer of Health.*

**Table B. Showing population, Births, Marriages, and Deaths, and Birth and Death Rates, in Bristol, for the 20 Years, 1877-1896. (All figures revised on 1891 Census.)**

	Estimated Population.	Registered Births.	Marriages in the District of the Bristol Union.	DEATHS.			ANNUAL RATES.					
				Total Deaths at all Ages.	Under 1 Year.	Over 1 and under 5.	Over 60.	In Public Institutions.	Birth Rate per 1000.	Death Rate per 1000.	Infantile Mortality to 1000 Births.	Zymotic Rate.
1877	197,395	7,295	1,199	4,415	1,120	785	990	653	36.9	22.3	153.5	3.3
1878	199,879	7,236	1,159	4,409	1,145	605	1,121	631	36.2	22.0	158.2	2.0
1879	202,400	7,644	1,115	4,496	1,112	715	1,163	607	37.7	22.2	145.4	2.2
1880	204,942	7,193	1,195	4,276	1,040	759	1,036	661	35.1	20.8	144.5	3.0
1881	207,229	7,121	1,103	4,050	900	608	1,084	650	33.8	19.5	126.3	2.2
1882	208,007	6,935	1,107	4,019	988	589	1,045	624	33.3	19.3	142.0	2.3
1883	209,522	6,844	1,073	3,795	917	405	1,057	608	32.6	18.1	133.9	1.1
1884	211,048	6,888	1,090	4,023	1,001	538	1,061	653	32.6	19.0	145.3	1.8
1885	212,586	6,786	974	4,281	1,052	639	1,134	629	31.9	20.1	155.0	2.2
1886	214,134	6,724	949	4,253	1,002	619	1,132	694	31.4	19.8	149.1	2.2
1887	215,694	6,619	956	4,542	996	796	1,244	680	30.6	21.0	150.4	3.0
1888	217,266	6,608	981	3,816	824	432	1,138	710	30.4	17.5	124.6	1.3
1889	218,848	6,694	932	4,021	976	595	1,062	660	30.5	18.3	145.8	2.2
1890	220,442	6,634	1,033	4,532	991	597	1,265	730	30.0	20.5	149.4	2.1
1891	222,049	6,725	937	4,631	972	603	1,371	815	30.3	20.8	144.5	1.7
1892	223,592	6,563	973	4,331	953	634	1,197	776	29.3	19.3	145.2	2.0
1893	225,028	6,788	955	4,241	959	411	1,283	851	30.1	18.8	141.2	1.6
1894	226,578	6,393	920	3,888	848	524	1,077	769	28.8	17.1	148.3	2.0
1895	228,139	6,622	846	4,108	935	414	1,321	837	29.0	18.0	141.1	1.1
1896	230,626	6,537	863	3,960	908	476	1,130	793	27.8	16.8	138.9	1.8

\* This includes the Registration Sub-Districts of St. Mary Redcliff, Castle Preenicks, St. Paul, St. James, and St. Augustine only.



Table C. Showing Number of Deaths from Zymotic Diseases in Bristol, during the 21 years, 1876—1896.

	1876	1877	1878	1879	1880	1881	1882	1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	1894	1895	1896
Small Pox	23	...	...	...	1	...	...	...	...	10	8	13	26	...	...	1+	...	20+	16 x	...	5
Diphtheria	11	4	5	4	6	10	8	13	19	25	28	23	26	15	16	16	58	53	50	34	38
Erysipelas	14	17	12	13	10	18	14	10	11	10	11	10	21	16	9	12	21	11	8	16	10
Scarlet Fever	286	45	36	92	244	153	75	23	37	21	89	217	45	26	40	37	47	35	16	16	59
Typhus	5	31	2	...	...	7	10	1	2	...	...	...	...	...	1	...	...	...	...	...	...
Euterie Fever	84	101	89	42	39	52	38	29	40	16	29	23	28	38	33	23	18	26	21	22	20
Puerperal Fever*	...	...	...	...	...	...	...	...	18	12	8	9	17	11	12	7	25	16	11	8	8
Measles	77	133	53	74	73	120	54	33	45	159	101	147	61	185	92	239	105	25	116	8	143
Whooping Cough	47	239	66	174	95	38	196	38	99	149	101	124	38	165	201	53	151	80	177	45	64
Diarrhoea	209	117	171	70	184	82	104	83	132	89	119	117	68	131	96	58	99	125	65	143	106

\* Previous to 1884, Puerperal Fever was not separated in the Local returns from Puerperal Diseases generally.

+ This death occurred in the Nover's Hill Hospital outside the City, and so did not appear in the General Returns.

+ Of these deaths one occurred in the Nover's Hill Hospital, outside the City, and so did not appear in the General Returns.

x Of these deaths five occurred in the Nover's Hill Hospital, outside the City, and so did not appear in the General Returns.

D.

## City of Bristol.

TABLE SHOWING DEATHS FROM SPECIFIED CAUSES AT ALL AGES  
AND AT SIX GROUPS OF AGES, DURING THE YEAR 1896.

Classes.	Causes of Death	Deaths at certain Age Groups.						All Ages.			Rate per 1000 Living.
		0 to 1	1 to 5	5 to 15	15 to 25	25 to 60	up- wards.	M.	F.	Total.	
	<b>ALL CAUSES</b> ...	908	476	168	193	1085	1130	2004	1956	3960	16·84
I.	Small Pox { Vaccinated				1			1		1	0·004
	Un-Vaccinated		1			1	1	2	1	3	0·01
	No Statement					1		1		1	0·004
	Scarlet Fever		37	21		1		33	26	59	0·25
	Diphtheria	5	20	10				17	18	35	0·14
	Membranous Croup	1	2						3	3	0·01
	Typhus Fever										
	Enteric or Typhoid Fever		2	5	4	8	1	15	5	20	0·08
	Continued Fever, Ill-defined Fever										
	Relapsing Fever										
	Puerperal Fever				3	7			10	10	0·04
	Cholera (Asiatic)										
	Erysipelas	4	1			4	1	4	6	10	0·04
	Measles	35	100	8				61	82	143	0·60
	Whooping Cough	30	33	1				30	24	64	0·27
	Influenza		3	1	1	8	6	9	10	19	0·28
	Simple Cholera, Chol: Diarrhoea										
	Diarrhoea, Dysentery	85	13			5	3	55	51	106	0·45
	Venereal Affections	15				3		10	8	18	0·07
	Pyæmia				1				1	1	0·004
	Cow Pox, Effects of Vaccination										
	Anthrax					1		1		1	0·004
	Other Spec: Feb: or Zymotic Dis.	1				2	3	3	3	6	0·02
II.	Parasitic Diseases										
III.	Dietic Diseases, Alcoholism				1	7		5	3	8	0·03
IV.	Rheumatic Fever			5	4	6	1	6	10	16	
	Rickets	4	10	1				9	6	15	
	Cancer, Malignant Disease			1	2	89	109	71	130	201	0·85
	Tabes Mesenterica	16	2	1				8	11	19	
	Tubercular Meningitis, Hydro- cephalus	13	15	10	3	1		22	20	42	
	Phthisis Pulmonalis	5	8	11	77	203	16	192	128	320	1·36
	Scrofula, Tuberculosis	7	11	12	12	23	3	35	33	68	
V.	Other Constitutional Diseases		5	3	5	21	12	19	27	46	
	Premature Birth	135						84	51	135	
	Congenital Malformations	14						8	6	14	
	Old Age						148	61	87	148	0·62
	Inflam: of Brain and Membranes	8	8	4	2	3	3	14	14	28	
VI.	Apoplexy, Paralysis	1	1	1	1	76	176	116	140	256	
	Epilepsy			1	6	4	2	7	6	13	2·16
	Convulsions	121	21	2	1			88	57	145	
	Other Diseases of Nervous System	4	1	3	3	26	29	35	31	66	
	Diseases of Heart and Circulation	7	2	12	13	163	220	188	229	417	1·17
	Croup		1					1		1	
	Bronchitis	116	54	4	2	65	184	182	243	425	3·20
	Pneumonia	56	53	12	10	76	36	139	104	243	
	Other Respiratory Diseases	7	14	2	2	25	34	40	44	84	
	Dentition	10	11					13	8	21	
	Dis: of Stomach and Intestines,										
	Peritonitis	57	5	5	12	35	29	74	69	143	1·08
	Cirrhosis and other Dis: of Liver	5	1		49	17		47	25	72	
	Other Diseases of Digestive System	11	2		5	2		10	10	20	
	Diseases of Urinary Organs	1	4	8	5	56	45	79	40	119	0·50
	Diseases of Reproductive Organs.					5	3		8	8	
	Other Local Diseases	8	3	3	7	25	6	17	35	52	
VII.	Accident, Negligence	4	22	16	8	53	26	92	37	129	
	Suffocation	5						2	3	5	
	Homicide	3				1			4	4	0·67
	Suicide				3	12	6	18	3	21	
	Execution										
VIII.	Marasmus, Atrophy, Debility	88	5	4	3		3	54	49	103	
	Other Ill-defined Causes	26	5	1	1	15	5	26	27	53	0·66

# **Infectious Disease (Notification Act,) 1889.**

**1896** Notifications received during each Quarter of 1896.

**Table A.** (UNCORRECTED, AS RECEIVED)

NOTIFIABLE DISEASE.	First Quarter	Second Quarter.	Third Quarter	Fourth Quarter.	Totals of each Disease.
Small Pox ... ..	22	22	...	...	<b>44</b>
Cholera ... .. Choleraic Diarrhoea ...	...	1	...	...	<b>1</b>
Diphtheria ... ..	65	69	51	67	<b>252</b>
Membranous Croup ...	5	9	2	2	<b>18</b>
Erysipelas ... ..	58	61	48	79	<b>246</b>
Scarlet Fever or Sear- latina ... ..	368	346	298	358	<b>1,370</b>
Typhus Fever ... ..	...	...	...	...	...
Enteric or Typhoid Fever ... ..	34	34	21	21	<b>110</b>
Relapsing Fever ... ..	...	...	...	...	...
Continued Fever ... ..	1	...	1	...	<b>2</b>
Puerperal Fever ... ..	9	3	2	7	<b>21</b>
Totals in each Quarter	<b>562</b>	<b>545</b>	<b>423</b>	<b>534</b>	<b>2,064</b>

Table B. Notification and Deaths registered by Sub Districts during the year 1896.

(CORRECTED.)

	Small Pox.	Cholerae Diarrhoea	Diphtheria.	Membranous Croup.	Erysipelas.	Scarlet Fever	TYPHUS.	ENTERIC TYPHOID.	Relapa- sing.	Continued Cases Deaths	PUER- PERAL.	Total cases in each District.
	Cases Deaths	Cases Deaths	Cases Deaths	Cases Deaths	Cases Deaths	Cases Deaths		Cases Deaths			Cases Deaths	
St. Mary Redefild	1 1		24 1	1	15	48 5		3 2				92
Castle Precincts			5		6	25 1		1				37
St. Paul	1		16 5	1	14	75 5		12 2		1		121
St. James			10 1		15	67 3						92
St. Augustine			8	1	13	71 2		2			1	96
Bedminster	2		63 13	5	56	371 19		32 3		1	7	537
Clifton	1		27 2	1	24	255 9		12 5		1	6	326
Ashley	1		24 1	1	27	129 3		7 1				189
St. Philip	30 3	1	27 5	4	59	216 11		26 1			3	366
Westbury			23 2	3	10	76		9 3			3	124
Avonmouth						6						6
Admitted to Public Insts from outside of Borough	2		14 5		7	12 1		6 2				41
Extra Municipal Insts.	4 1					1						5
Total cases of each disease	42	1	211	17	246	1352		110		2	21	2632
Total deaths from each disease	5	0	35	3	10	59		20		0	10	
Percentage of deaths to known cases ...	11.9	0	14.5	17.6	4.0	4.3		18.1		0	47.6	

This Table has been corrected as follows:—

Two cases notified as Small Pox, eleven notified as Diphtheria, one notified as Membranous Croup, and eighteen notified as Scarlet Fever proved subsequently not to be cases of those diseases, and have been deducted.



Table C.

**NOTIFICATION.**

Particulars as to removal and Disinfection in all Cases Notified during the Year 1896.

	Small Pox.	Choleraic Diarrhoea.	Diphtheria.	Membranous Group.	Erysipelas.	Scarlatina or Scarlet Fever.	The Fevers known by the following names:—				TOTALS
							Typhus.	Typhoid Enteric.	Relapsing	Continued	
Cases removed to Hospital, Infirmary, or Children's Hospital ...	...	...	61+	2	29+	17	...	45	...	...	155
Cases removed to Sanitary Authority's Hospitals ...	38*	...	1	...	...	515§	...	...	...	...	554
Cases removed by Guardians ...	4	...	...	...	2	23	...	...	...	...	29
Total cases nursed at Home ...	...	1	190	16	215	797	...	65	...	2	1306
Total cases known or notified ...	42	1	252	18	246	1352	0	110	...	2	2044
Cases in which disinfection of bedding, clothing, and rooms has been carried out, and necessary precautions taken under the supervision of District Inspector ...	38	1	217	18	19	1331	...	103	...	2	1749
Cases in which disinfection was carried out to the satisfaction of Medical Attendant or in which Disinfection was unnecessary ...	4	...	35	...	227	21	...	7	...	...	295

\* Two cases were admitted from outside the Borough.

+ Fourteen cases admitted from outside the Borough.

+ Seven cases admitted from outside the Borough.

§ Eight Cases admitted from outside Borough.

|| Six Cases admitted from outside Borough.

COMPARATIVE TABLE—Showing the Estimated Population, Density, Birth-rate, Death-rate, Zymotic-rate, Fever Death Rate, Diarrhoea Death Rate, and Infantile Death Rate of the 13 LARGEST TOWNS OF ENGLAND AND WALES (those having a population of over 200,000); also of EDINBURGH, GLASGOW, DUBLIN, and CARDIFF, for the Year 1896, compared with the same particulars and rates for the group of 33 large towns.

*From the Registrar General's Return.*

	Estimated Population, middle of 1896.*	Persons to an acre.	Birth-rate.	Death-rate.	Zymotic- rate.	Fever Death-rate.	Diarrhoea Death-rate.	Deaths under 1 year to 1000 Births.
33 Large Towns	10,846,971	35.1	30.7	18.9	2.86	0.19	0.79	167
London...	4,421,955	59.2	30.2	18.6	3.14	0.14	0.72	161
Liverpool...	632,512	47.8	34.9	22.7	3.01	0.32	1.16	173
Manchester...	529,561	41.0	33.0	22.6	3.42	0.23	0.94	176
Birmingham...	501,241	39.5	32.6	20.8	3.57	0.21	1.20	197
Leeds...	402,449	18.7	30.7	18.8	2.28	0.21	0.69	169
Sheffield...	347,278	17.7	34.0	19.3	2.91	0.29	1.02	173
West Ham...	261,297	55.5	32.6	16.1	3.00	0.23	0.81	165
<b>Bristol</b>	<b>230,623</b>	<b>49.3</b>	<b>27.6</b>	<b>16.9</b>	<b>1.90</b>	<b>0.08</b>	<b>0.52</b>	<b>142</b>
Nottingham...	229,775	21.0	28.9	17.5	2.47	0.34	0.69	168
Bradford...	228,809	21.2	25.5	16.5	1.58	0.12	1.38	143
Hull...	220,844	26.8	31.9	18.9	3.32	0.28	0.90	173
Newcastle...	212,223	39.5	31.1	18.5	2.08	0.15	0.51	165
Salford...	210,707	40.7	34.9	22.6	4.10	0.33	1.23	199
Edinburgh...	276,514	44.4	27.3	16.9	1.00	0.14	0.20	122
Glasgow...	705,052	59.3	33.8	20.4	3.53	0.22	0.85	...
Dublin...	349,594	14.2	30.1	24.9	2.41	0.45	0.94	...
Cardiff...	162,690	26.8	33.8	16.8	2.27	0.08	0.77	165

\* These Populations are based on the 1891 Census returns.

## COMPARATIVE MORTALITY.

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### 1896.—The 33 Great Towns. From the Registrar General's Annual Summary.

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The estimated population of the 33 great towns of England and Wales in the middle of the year 1896, was 10,846,971.

The *births* registered during the 52 weeks of the year were equal to an annual rate of 30·7 per 1,000 of the estimated population.

The *deaths* registered within the same period were equal to an annual rate of 18·9 per 1,000 persons living.

The general death-rate in 1896, uncorrected for age or sex, ranged from the lowest 14·2 in *Croydon*, and 15·6 in *Derby*, to 22·6 in *Salford and Manchester*, and 22·7 in *Liverpool*. The death-rate in **Bristol** was **16·9**.

**Infant Mortality**—or the ratio of deaths of infants under 1 year to births registered was equal in the 33 great towns to 167 per 1,000, corresponding exactly with the average rate in the ten preceding years. The lowest rates in 1896 were 135 in *Brighton*, **142** in **Bristol**, 143 in *Bradford* and 149 in *Halifax*; the highest were 187 in *Leicester*, 197 in *Birmingham*, 199 in *Salford*, and 203 in *Preston*.

The mortality from *Measles*, *Diphtheria*, and *Whooping Cough* showed a considerable excess in 1896, whilst that from *Small Pox*, *Scarlet Fever*, *Diarrhœa* and *Fever* was below the decennial average.

*Small-Pox*.—This disease caused 25 deaths, compared with 120, 732, 450 and 120 in the preceding four years. Of these 25 deaths 9 occurred in *London* or the Metropolitan Asylums Hospitals, 4 in *West Ham*, **5** in **Bristol**, 3 in *Cardiff*, 2 in *Swansea*, and one each in *Bradford* and *Leeds*.

In the SIXTY-SEVEN other LARGE TOWNS, *Small Pox* caused 441 deaths, of which 427 occurred in *Gloucester*, 14 in *Aston Manor*, 3 in *Wigan*, 3 in *Newport*, 2 in *Exeter*, 1 in *Southampton*, and 1 in *Merthyr Tydfil*.

*Measles*.—The rate from this disease was 0·71 per 1,000 against a decennial average of 0·60. The lowest rates were 0·03 in *Preston*, 0·05 in *Bolton*, and 0·06 in *Swansea*. The highest rates were 1·06 in *Norwich* and in *Manchester*, 1·15 in *Oldham*, 1·16 in *Hull* and 1·37 in *Gateshead*. The rate in **Bristol** was **0·61**.

*Scarlet Fever* caused a mortality equal to 0·22 per 1,000 as compared with a decennial average of 0·27. No death was recorded in *Halifax*, and the lowest *Scarlet Fever* rates in the other towns were 0·03 in *Plymouth* and 0·04 in *Croydon*, *Swansea*, *Norwich* and *Barnley*; the highest rates were 0·35 in *Liverpool*, 0·37 in *Manchester*, 0·38 in *Oldham*, and 0·49 in *Salford*. The rate in **Bristol** was **0·25**.

*Diphtheria*.—The mortality ascribed to *Diphtheria* was equal to a rate of 0·38 per 1,000, against a decennial average of 0·27, and a rate in 1895 of 0·35.

The lowest *Diphtheria* rates were 0·06 in *Nottingham* and *Sunderland*, 0·07 in *Bradford*, and 0·08 in *Blackburn*; the highest rates were 0·46 in *Barnley*, 0·53 in *Birmingham*, 0·60 in *Wolverhampton* and 0·70 in *West Ham*. The rate in **Bristol** was **0·16**.

*Whooping Cough* accounted for a death-rate of 0·57 per 1,000, which was 0·02 above the average rate. The lowest rates in 1896 were 0·08 in *Norwich*, 0·19 in *Plymouth* and 0·25 in *Leicester*; the highest rates were 0·67 in *Manchester*, 0·74 in *Birmingham*, 0·83 in *Bolton*, and 0·88 in *Salford*. The rate in **Bristol** was **0·26**.

*Continued Fevers*, mainly *Enteric*, gave a rate equal to 0·19 per 1,000, or 0·02 below the decennial average rate. The lowest rates were 0·07 in *Plymouth*, **0·08** in **Bristol**



and in *Cardiff*, and 0·11 in *Brighton*; the highest rates were 0·34 in *Nottingham*, 0·37 in *Sunderland*, 0·39 in *Bolton*, and 0·41 in *Wolverhampton*.

*Diarrhæa* gave a rate of 0·79 per 1,000, or 0·09 below the decennial average. The lowest rates were 0·16 in *Halifax*, 0·25 in *Swansea* and 0·26 in *Huddersfield*. The highest rates were 1·16 in *Liverpool*, 1·20 in *Birmingham*, 1·23 in *Salford*, 1·35 in *Leicester* and 1·41 in *Wolverhampton*. The rate in **Bristol** was **0·52**.

The highest aggregate rates from the seven Zymotic diseases above enumerated, were 3·32 in *Hull*, 3·42 in *Manchester*, 3·57 in *Birmingham* and 4·10 in *Salford*. The lowest aggregate rates from these diseases were 1·10 in *Halifax*, 1·18 in *Swansea*, 1·58 in *Bradford* and 1·60 in *Huddersfield*. The rate in **Bristol** was **1·90**.

### Colonial and Foreign Cities.

In the 33 principal Colonial and Foreign Cities from which returns are furnished, containing an estimated aggregate population of twenty-one and a half millions it is found that the deaths last year were collectively equal to a rate of 23·6 per 1,000 living.

In 28 European and American Cities, with an aggregate population of more than nineteen millions, the rate was 21·3 per 1,000. In these 28 cities the lowest death-rates were 16·3 in *The Hague*, 16·8 in *Copenhagen* and *Stockholm*, 16·9 in *Cincinnati*, 17·3 in *St. Louis*, 17·4 in *Amsterdam* and 17·5 in *Hamburg*; in the other cities the rates ranged upwards to 25·0 in *Venice*, 25·1 in *Breslau*, 25·4 in *Buda Pesth*, 27·9 in *Trieste*, 30·9 in *St. Petersburg* and 38·9 in *Moscow*.

In *Paris* the rate was 19·0, in *Berlin* 17·9 and in *Vienna* 22·3, against **18·6** in **London**.

*Small Pox* caused 143 deaths in *St. Petersburg*, 23 in *Paris*, 22 in *Moscow* and 13 in *Buda Pesth*.

*Measles* was proportionately most fatal in *St. Petersburg*, *Moscow*, *Vienna*, *Venice*, *Prague*, *Trieste* and *Turin*; *Scarlet Fever* in *St. Petersburg*, *Moscow* and *Trieste*; *Diphtheria* in *St. Petersburg*, *Moscow*, *Munich*, *Vienna*, *Trieste*, and in most of the American cities from which returns are received: *Whooping Cough* in *Rotterdam*, *Stockholm* and *Christiania*; *Fever* in *St. Petersburg*, *Moscow*, *Prague*, *Rome* and *Philadelphia*: and *Diarrhœal diseases* (including *Cholera*) in *Christiania*, *St. Petersburg*, *Moscow*, *Breslau*, *Munich* and *Venice*.

Among the three Indian Cities the death-rate was equal to 41·5 per 1,000 in *Bombay* 33·0 in *Calcutta*, and 37·8 in *Madras*.

*Small Pox* caused 35 deaths in *Calcutta*, 702 in *Bombay*, and 39 in *Madras*; and *Measles* caused 247 deaths in *Bombay* and 497 in *Madras*. The mortality from *Diarrhœal diseases* (including *Cholera*) was excessive in each of the three Indian Cities. Of the 11,324 deaths referred to *Fever* in *Bombay*, 1,805 were attributed to *Bubonic Fever*.

In *Cairo* and *Alexandria* the death-rates were respectively 55·2 and 42·4 per 1,000, these high rates being mainly attributable to excessive mortality from *Diarrhœal diseases*.

### **Bristol Sanitary Authority's Hospitals.**

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REPORT FOR THE 53 WEEKS BEGINNING DECEMBER 29TH 1895  
AND ENDING JANUARY 2ND, 1897.

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#### **St. Philip's Marsh Hospital—Small Pox.**

Remaining from 1895	...	...	3	}	20
Admitted	...	...	17		
Discharged Cured	...	...	7	}	20
„ to Nover's Hill	...	...	7		
„ to Hospital Ship	...	...	5		
Died	...	...	1		

### Nover's Hill Hospital—Small Pox.

*Admitted	...	...	...	25	}	32
„	from St. Philip's	...	...	7		
Discharged Cured	...	...	...	29	}	32
Died	...	...	...	3		

One patient had an attack 17 years ago at the age of 22, so severe as to cause the loss of the sight of one eye. The second attack was very severe, confluent, and almost proved fatal.

### Nover's Hill Hospital—Scarlet Fever.

Patients were cleared out to make room for Small Pox cases, and others re-admitted later on in the year after Small Pox had ceased.

Remaining from 1895	...	...	35	}	258
Admitted	...	...	223		
Discharged Cured	...	...	156	}	258
„	to Avonmouth...	...	24		
„	to Clift House	...	6		
„	not Scarlet Fever	...	3		
†Died	...	...	14		
Remaining	...	...	55		

One case admitted proved not to be Scarlet Fever, but contracted the disease two days after.

#### *Causes of death in the 14 cases—*

Scarlatina Anginosa	...	...	8	}	14
„ Maligna	...	...	2		
Diarrhoea	...	...	2		
Albuminuric Pneumonia	...	...	1		
Cachexia following a comparatively mild case of Scarlet Fever	...	...	1		

\*Three admitted on probation proved not to be Small Pox.

†Two of these of cases admitted from outside the City.

G. C. PAULI,

M.R.C.S., L.R.C.P.,

*Medical Attendant.*

**Clift House—Scarlet Fever.**

Remaining from 1895	...	...	35	}	334
Admitted	...	...	293		
„ from The Novers	...	...	6		
Discharged Cured	..	...	210	}	334
„ to Avonmouth...	...	...	76		
Died	...	...	9		
Remaining	...	...	39		

There were 3 cases of Diphtheria, including one remaining from 1895. Tracheotomy was performed in two of these and was successful in one case. The case remaining from 1895 recovered without the aid of operation.

5 cases admitted proved not to be Scarlet Fever, but two, one a nurse, contracted this disease in Hospital.

*Causes of Death—*

Scarlatina Maligna	...	...	4	}	8
„ Anginosa	...	...	2		
Consumption	...	...	1		
Diphtheria, after Tracheotomy	...	...	1		

G. C. PAULI,

M.R.C.S., L.R.C.P.,

*Medical Attendant.*

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NOTE.—The numbers given above will be found to vary slightly from the totals given in the other tables owing to transfers from one Hospital to another, and also to the admission of some patients not belonging to the City.

## PART II.

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### Report of the Chief Inspector of Nuisances.

1896.

PUBLIC HEALTH DEPARTMENT,  
40 PRINCE STREET

*January, 1897*

To THE BRISTOL URBAN SANITARY AUTHORITY,  
GENTLEMEN,

I have the honour of submitting the following brief Report, with summary, showing the amount of work effected in this Department during the past year, which will, I trust, receive your approbation.

1,347 complaints and applications were received at this Office, and duly enquired into, of these 460 or 34 per cent. were found on investigation to refer to premises at which no Nuisance was found to exist; another 20 of these were from premises outside the city.

2,064 cases of Infectious Disease were notified to the Medical Officer of Health, and duly enquired into by the Inspectors in their respective districts, those enquiries, which necessitated 4,146 visits were conducted in such a manner that no friction was caused. 1,379 infected houses were disinfected, and 49,226 articles of clothing, bedding, &c. removed therefrom, and disinfected by steam and returned to the houses. The Washington Lyons Steam Disinfector has again proved equal to everything expected of it, but more space is urgently needed for receiving, sorting, storing, and sending off such a large number of articles.

The Informal Notices have again been so successful in getting nuisances abated, that only 88 Formal Notices were required.



The prosecutions under the Public Health Acts were somewhat in excess of those of last year, but in no case are such extreme measures taken until all other means have failed in getting the Notices complied with. I append full particulars of all such cases.

In consequence of the long drought much extra attention was required and given to the courts and similar places, street gullies, &c. The usual lime-washing, disinfection &c., was as usual done under the supervision of the Cleansing Inspectors of the City Engineer's Department, to whom I am again much indebted for ready and able assistance.

**Slaughter Houses** have been constantly visited and are kept in as good order as their structural condition and general surroundings will permit, but I long for the advent of Public Abattoirs: there are now 84 private Slaughter Houses in the city and 2 belonging to the Docks Committee, one at Hotwells and one at Avonmouth, also one private Knaekers' yard at St. Philip's Marsh

**Houses Let in Lodgings** now number 411, an addition of 47 during the year, and have been kept fairly up to the mark by lime-washing, &c., this however is only acquired by constant visiting and much kindly advice to the occupants.

**Dairies, Cowsheds and Milkshops** now number 1,271, an increase of 27, 89 having been added to, and 62 struck off the register during the year: it is in these frequent changes that trouble is given, the large and old established Dairies, &c., now give but very little trouble.

**Factory and Workshops Acts.**—I am again glad to say that the extremely complicated work connected with these Acts has been carried on without the slightest friction during the year, and much good and necessary work done, as a glance at the attached summary will show: there are

now 881 Workshops on the register; the Inspector appointed for this work is in perfect accord with H.M. Inspector of Factories.

**Common Lodging Houses,** now 43 in number, have been found in a generally satisfactory condition, but by the time this Report is in your hands, those situated in the Pithay will have been demolished for street improvements, and great difficulty is being experienced in obtaining other and suitable premises to replace those so demolished in the early part of the year: the Small Pox epidemic at Gloucester was responsible for the introduction of several cases of this disease into these houses, all such cases were however promptly dealt with by removal to Hospital and thorough disinfection of houses, bedding, &c. During this epidemic, advantage was taken of section 83, of the Public Health Act 1875, and schedules were sent to, and collected from each house daily by an employé duly appointed for that purpose, 3717 such schedules were so used containing the names, &c., of all fresh lodgers received during the previous 24 hours, but it was remarkable that very few of such lodgers came to Bristol via Gloucester!

**Housing of the Working Classes Act, 1890.**—During the past year 28 houses were reported to be in a condition so dangerous to health as to render them unfit for human habitation, of these, 14 were made habitable, and 14 permanently closed, 4 other houses were reported as obstructive and the necessary negotiations in regard to them are now in progress.

**Avonmouth.**—The work of improving the Sanitary conditions of the houses at this place is steadily progressing, most of the houses are, however, more or less damp, arising from the nature of the soil and sub-soil in which they are built, the absence of damp proof courses, and the quality of the materials used in their construction; and in my opinion it is very desirable that all building sites in this neighbourhood should be raised some two or three feet and covered with a good damp proof course before dwelling houses are erected thereon.

During the year, the carcasses of 12 beasts, 88 sheep, 10 pigs, 2 calves, 1,474 lbs of meat from butcher's shops, 319 packages of fish, 169 lbs of vegetables, 45 lbs of fruit, and one churn of unwholesome milk were destroyed as unfit for food.

### **House Drains.**

In dealing with house drains during the year, it was found that upwards of 600 of those dealt with were laid directly under the houses from the conveniences at the back to the sewer in front of the houses, and this is generally the case in the houses of the artizan class, where the houses are attached all through a street, thus, when anything goes wrong there is not only the inconvenience of having the floors taken up and ground excavated, but the danger of inhaling sewer gas. It would no doubt be a great improvement to have all drains in such cases connected to a sewer at the back, either running across the gardens, or better still, to have a narrow back street, under which the sewer might be constructed: this plan would also give the boon of a much to be desired back entrance.

JAMES W. KIRLEY,

*Chief Inspector of Nuisances*

# Summary of Nuisances abated and work done by the Inspectors in the Health Department during the year 1896.

*Prepared by the Chief Inspector of Nuisances.*

NATURE OF WORK.	By District Inspectors.	By Inspector of Dairies, &c.	By Inspector of Workshops &c.	By Inspector of Tenement Houses.	By Inspector of Slaughter Houses, &c.	By Inspector of Common Lodging Houses.	By Inspector of Bake Houses.	TOTALS.
Drains entirely relaid, &c. ... ..	435	11	56	32	2		2	538
Do. partially relaid ... ..	886	19	47	20	2	3	16	993
V.C.'s fitted with new pans, &c. ...	1088	41	76	34	4			1243
Do. cleansed and amended ... ..	98	34	25	29				186
Do. fitted with flushing appliances	154	25	63	9				251
Additional W.C. accommodation pro vided ... ..			14	3				17
Dilapidated Houses, repaired, &c. ...	297					1	12	310
Nuisances from overcrowding abated	25	2	2	24				53
Yards paved by Owners ... ..	595	24		72				691
Offensive Deposits removed ... ..	177	32	8	24	35			276
Pits and Yard Gullies trapped ...	1047	62	107	46				1262
Defective Roofs repaired ... ..	154	5	6	36	2			203
Cesspools abolished ... ..	12	1						13
Keeping of Pigs, &c., prohibited ...	539	4						543
Smoke Nuisances abated ... ..	4							4
Offensive Trades do. ... ..	21							21
Polluted Wells closed ... ..	14							14
Company's Water provided to houses.	68		10					78
Dairies, &c., cleansed and improved		159						159
Workrooms, Passages, &c., lime- washed, &c. ... ..			82					82
Do. better ventilation secured ...			10					10
Rooms at Tenement Houses, lime- washed, &c. ... ..				1122				1122
Passages and Stairs at do do.				428				428
Slaughter Houses, limewashed ...					36			36
Do. Paving repaired ... ..					5			5
Other Nuisances abated ... ..	69	10	72			90	21	262
<b>Totals</b> ... ..	<b>5683</b>	<b>429</b>	<b>578</b>	<b>1879</b>	<b>86</b>	<b>94</b>	<b>51</b>	<b>8800</b>

Visits and Revisits to all work in Progress ... ..	26906	2426	2456	2974	10563	875	636	46836
Special Visits under Sec. 83, P.H.A.						3717		3717

No. of Complaints received and attended to	...	...	...	1347
„ Visits and Revisits to see work in progress	...	...	...	46836
„ Special Visits collecting Schedules under Sec. 83 P.H.A. ... ..	...	...	...	3717
„ Offensive trades visited	...	...	...	50553
„ Smoke observations taken	...	...	...	97
„ Times smoke test applied to drains	...	...	...	129
„ Visits to houses re infectious disease	...	...	...	1236
„ Houses disinfected after such disease	...	...	...	4146
„ Articles of Bedding, &c., removed and disinfected	...	...	...	1389
„ Do. Do. and burnt	...	...	...	49198
„ Do. Do. and burnt	...	...	...	28
Total number of articles dealt with	...	...	...	49226
Number of Cabs disinfected	...	...	...	5
Notices served, Informal, letters and verbal	...	...	...	2309
„ „ Formal	...	...	...	88
„ „ Systematic—limewashing, cleansing, &c.	...	...	...	426
No. of Slaughterhouses on Register	...	...	...	86
„ Common Lodging Houses (containing 235 rooms, certified to accommodate 1082. The rooms contain 890 single beds for men, 30 single beds for women, and 83 double beds separated)	...	...	...	43
„ Dairies, Cowsheds and Milkshops	...	...	...	1271
„ Houses let in lodgings	...	...	...	411
„ Workshops	...	...	...	881
„ Bakehouses	...	...	...	290

J. W. KIRLEY,  
*Chief Inspector of Nuisances.*

# Summary of Work effected in the Health Department during Eleven Years—1886-96.

*Prepared by the Chief Inspector of Nuisances.*

TABLE SHOWING THE NUMBER OF NUISANCES ABATED AND OTHER  
WORK DONE IN EACH YEAR SINCE 1886.

	1886	1887	1888	1889	1890	1891	1892	1893	1894	1895	1896
Number of Nuisances abated . . . . .	2424	3101	3139	3672	5600	5101	7485	8403	7564	7366	8800
Polluted Wells closed	16	17	18	48	35	14	14	26	27	32	14
Houses supplied with Co.'s Water . . .	27	29	36	113	68	24	37	223	79	85	68
Houses disinfected . .	215	541	403	264	558	879	1351	1815	931	651	1389
Articles of bedding, &c., disinfected . .	7727	19563	23233	14462	20523	31112	36722	46959	36274	24320	49226



## **Factory & Workshop Acts, 1878, 1883, 1895.**

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### **Bake-house Inspection. Year 1896.**

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The General condition of Bake-houses has improved during the year both in structure and general cleanliness, through more new bakeries built and adapted to the purpose coming into operation, by reason of the substitution of improved ovens, which not only minimise the dirt, smoke and sulphur fumes, but shorten the hours of labour, from improvements made in old bakeries, and from increased attention being given to the cleaning regulations.

This improvement is instanced by the fact that only 51 Sanitary defects were noted, as compared with 74 in the previous year.

These defects comprised, defective drains, contravention of lime washing regulations, dilapidations of premises, defective ventilation and want of regular cleaning operations (for particulars see table).

The number of Bakeries now in operation is about 290, and several new ones are in course of construction.

Application was made for permission to use a new underground space for a bakehouse, but this was refused under the provisions of the 1895 Act, as also was an old cellar bakehouse that was not in use at the time of the Act coming in force.

Two other unsatisfactory cellar bakehouses have been discontinued, and are now prohibited by the same Act.

All bakehouses in which children or young persons were found employed, have been notified to H. M. Inspector of Factories in compliance with the provisions of the Act.

Table 1.

## Table of Bakehouse Inspection for the Year.

1896.

With particulars of Condition, Contraventions, Action taken, and Result.

Number of visits to Bakehouses, at which they were found in very good order ...	...	...	636
Ditto ditto in fair and passable order ...	...	155	...
Ditto ditto not in satisfactory condition from one or more ...	...	224	...
Number of the undermentioned 51 defects ...	...	51	...
Number of visits made in connection with Notices given, and seeing to proper compliance with same ...	...	206	...
About 200 Bakehouses were in operation during the year ...	...	636	636

## PARTICULARS OF DEFECTS.

Contraventions of lime-washing regulations ...	10	Informal Notices given for the removal of defects and complied with ...	37
Bakehouse premises with defective drains found thereon ...	18	Written Notices served and complied with ...	13
Repairs of floors and roofs ...	12	Formal Notices now running ...	1
Ventilation ...	1		
Accumulation of dung in yards ...	0		
Place used as bakehouse with W.C. directly connected ...	0		
Requiring to be cleaned ...	10		
	51		51

S. O. DIMOND,  
*Inspector.*

Table II.

**Showing Defects found and remedied in each year since Bakehouse Inspection was instituted.**

YEAR.	PARTICULARS.	TOTALS.
1884	Total contraventions in respect of cleansing, lime-washing, defective drains, repairs, and defective ventilation.	342
1885	Ditto	244
1886	Ditto	96
1887	Ditto	132
1888	Ditto	69
1889	Ditto	65
1890	Ditto	89
1891	Ditto	80
1892	Ditto	71
1893	Ditto	36
1894	Ditto	57
1895	Ditto	74
1896	Ditto	51

**Particulars of Cases taken before the Justices  
during the year  
1896.**

DATE.	NAME	OFFENCE.	RESULT.
Jan 3rd	S. Harding	Slaughtering a Bullock in unlicensed premises	Fined £5
"	W. J Harris	Having a Polluted well at 12 Clarence Road, St. Philip's.	Ordered to close the well and pay costs.
"	S. Hankin	Nuisance from a defective W.C.drain, &c. at 7 Beaumont Terrace.	Ordered to abate the Nuisance and pay costs.
Aug 18th	M. Durnford	Nuisance from defective W.C.s drains, &c. at Nos. 11 & 12 Montgomery Street.	Ditto.
" 28th	T. Manning	Nuisance from an unpaved Court at Great Ann Street.	Ditto.
Sep 18th	M. Durnford	Nuisance from a defective W.C. drain &c. at 53 Richmond Street, Totterdown.	Fined 20/- and costs and ordered to abate the Nuisance.
Oct 30th	J. Trousdale	Nuisance from defective & unflushed W.C.s at Cumberland Cottages, Hotwells	Ordered to abate the Nuisance and to pay costs.
"	B. Tomkins	Nuisance from an unpaved Courtyard at Whiteladies Road.	Ditto.
Nov 13th	S. Mountain	Nuisance from defective W.C.s drains &c. at 1 & 2 Fox's Terrace.	Ditto.
Dec 18th	W. H. Parry	Nuisance from dilapidated Houses at Great Ann Street, & Upper Cheese Lane	Adjourned for a month, work then done, Cases withdrawn on payment of costs.
"	T. Hampton	Nuisance from defective drain at Portwall Lane.	Ordered to abate the Nuisance and to pay costs.

1896.

**Baths and Wash-houses.**

The four establishments at

The Weir,

The Mayor's Paddock, New Cut,

Jacob's Wells,

Rennison's,

return the following figures for the year's work:—

	No. of Bathers. Swimming Baths.	Private Baths.	Women Washing Clothes.
The Weir	21,811	43,223	27,198
The Mayor's Paddock, New Cut	27,076	29,673	22,938
Jacob's Wells (Baths only)	35,124	23,436	...
Rennison's (Swimming Bath only)	32,231	...	...
Total ...	117,242	96,332	50,136

Particulars supplied by Mr. KANE,  
Baths Superintendent.



*The City Analyst, Mr. F. Wallis Stoddart, F.I.C., F.C.S. has kindly supplied the following returns:—*

“FOOD AND DRUGS ACT.”

**SUMMARY OF RETURNS FOR 1896.**

Articles.	Analysed.	Condemned.
Milk ... ..	159	13
Skimmed Milk ...	3	1
Butter ... ..	29	...
*Margarine ... ..	3	...
Pepper ... ..	18	...
Lard ... ..	16	7
Mustard ... ..	8	...
Sugar ... ..	8	...
Coffee ... ..	6	...
Vinegar ... ..	6	...
Bread ... ..	2	...
Confectionery ...	2	...
Miscellaneous ...	11	...
	271	21

\* These are all offences under the Margarine Act.

The working of this Act in the City of Bristol is now entrusted to an Inspector acting under the Watch Committee, and is not administered by the Sanitary Committee.

## PART III.

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### Meteorological Observations taken at Clifton College.

**1896.**      (*230 feet above mean Sea Level.*)

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*January.*—The mean temperature of this month was 41·16 degrees, the average for the preceding 15 years being 38·31, so that the month was 2·85 degrees hotter than usual. The mildness of the weather is evident from the fact that the mean temperature never fell so low as freezing point, whilst the lowest air temperature recorded during the month was 29·9 degrees. The temperature was especially high at the beginning of the month, the maximum thermometer on the 1st reading 51·8 degrees.

The barometer was very high during the whole month the reading at 9 a.m. on the 9th, when corrected and reduced to sea level, being 31·014 inches, a pressure which is very rarely reached. On only three days did the pressure fall below 30 inches. There was very little rain during the month, the total fall amounting only to ·628 inches. This rainfall was distributed over 12 days.

*February.*—This month again was slightly warmer than usual, the mean temperature being 40·12 degrees as compared with the average value for 15 years of 39·68 degrees. There was a slight frost in the first and last weeks of the month, but the mean temperature fell below freezing point on three days only. The total number of nights on which the ground thermometer fell below freezing point was 13.

The highest temperature recorded was 53·0 degrees on the 8th, the period from the 5th to the 14th being much warmer than usual. The lowest temperatures recorded were 24·5 degrees on the ground, and 26·5 degrees in the air 4ft. above the ground.

Like January, this month was marked by very high pressure, the barometer falling below 30 inches on four days only—viz., 19th to 22nd inclusive. The rainfall was very slight, and it is to be noted that the depression in the barometer just mentioned was unaccompanied by rain. There were only four “rainy” days during the month.

*March.*—This month was considerably warmer than usual, in fact the mean daily temperature fell below its normal value on only six days. The mean for the month was 45·64 degrees, while the average for 15 years is 41·96 degrees, so that the month was 3·68 degrees warmer than usual. The highest temperature recorded was 63·1 degrees on the 24th, the lowest being 31·9 degrees in the screen and 29·1 degrees on the ground on the last day of the month. There was frost on the ground on four days.

Unlike the previous month, March was marked by low and unsettled atmospheric pressure, the lowest reading taken being 28·839 inches on the 4th. There was no very heavy rainfall on any day, but there were 24 rainy days, with an aggregate fall of 3·635 inches.

*April.*—In this month again the temperature was above the average of the previous 15 years, the values being 50·42 and 47·15 degrees respectively. As in March, there were only four days on which the mean temperature fell below its normal value. There was no frost even on the ground, the lowest temperature recorded being 35·1 on the screen and 33·4 on the ground on the 2nd. The highest temperature recorded was 64·7 degrees on the 22nd.

The month was dry with high barometer; there were ten days on which 0·1 inch or more rain was measured, and the total rainfall amounted to ·627.

*May.*—This was one of the hottest Mays of recent years, the mean temperature for about a week in the first half of the month being about ten degrees above its normal value. The mean for the month was 57·00 degrees, or about  $4\frac{1}{2}$  degrees above the normal value of 52·51 degrees. The

highest temperature noted was 81·3 degrees on the 12th, a temperature which was exceeded only twice during the whole year, namely on June 15th and July 20th. At the same time the night temperatures were low, so that on some days the difference between highest and lowest temperatures for the same day amounted to 30 degrees. On six days of the month the lowest temperature was *above* the average value of the *mean* temperature for this time of year.

The atmospheric pressure was high during the whole month, and as is to be expected from what has been said of the great range of daily temperatures, the air was generally very dry. There were only four days on which a measurable quantity of rain fell, and the total rainfall amounted to no more than ·375 inch.

*June.*—The abnormally high temperature which characterised the previous month was also continued in this. The mean for the month was 63·47 degrees, or 4·4 degrees above the average of the previous 15 years. The weather was especially hot in the middle of the month, the highest temperature, 84·2 degrees, being reached on the 15th. The lowest air temperature recorded was 49·8 degrees on the 22nd.

The atmospheric pressure was variable, but normal on the whole. The total rainfall was 1·320 inches, distributed over 12 days.

*July.*—The mean temperature was 63·36 degrees, 2·26 degrees higher than the average of the previous 15 years. The highest temperature recorded was 82·1 degrees on the 20th, the lowest in the air 49·7 on the 28th. The month was a dry one, as will be seen from the appended table: rain fell on nine days.

*August.*—The first six months of the year were all hotter than usual, but August was slightly colder, the defect from the average of the previous 15 years being about one third of a degree. Not only was the mean

temperature nearly normal, but the variations from day to day were very slight, the difference between the highest and lowest mean temperatures being only 13 degrees. The highest temperature recorded was 72·3 degrees on the 1st, and the lowest, 45·7 on the 27th. The barometer was variable, and the rainfall on 13 days amounted to a little over two inches.

*September.*—The mean temperature for this month was almost exactly that of the average of the previous 15 years. The fluctuations were slight, and the difference between maximum and minimum temperatures equally so, as is generally the case in wet weather.

The barometer was generally low and very unsettled. A series of cyclones, accompanied by heavy rain, crossed over the country, some of them of unusual intensity. Thus, on the 25th the barometer fell 1 inch in 9 hours. There were 23 rainy days, with an aggregate fall of about  $7\frac{1}{2}$  inches.

*October.*—The mean temperature was 45·19 degrees, or 3·36 degrees below the average. The highest temperature noted was 63·1 degrees on the 3rd, and the lowest 31·0 degrees on the 31st. There was frost in the screen on four days, but much oftener on the ground, though owing to the ground thermometer having been stolen, the records for this instrument are interrupted. The second half of the month was much colder than usual.

The unsettled weather of September continued in October, and there was very heavy rain from the 3rd till the 7th, and again on the 25th, when over an inch of rain fell.

*November.*—The mean temperature for this month was 40·28 degrees, as compared with the average value 44·61 degrees. The weather was therefore very considerably colder than is usual for this month. The maximum temperature reached was 50·1, whilst the lowest temperature was 27·2.

*December.*—The mean temperature of this month was 39·45, which is only fractionally lower than the average value 39·79 degrees. The highest temperature reached was 52·4, whilst the lowest point touched was 26·6.



# Rainfall at Clifton College, 1896.

## MONTHLY SUMMARY.

1896.	Rainfall in Inches.	Average of 15 Years.	Departure from Average.	No. of days on which ·01 inches or more rain fell
January ... ..	·628	2·483	- 1·855	12
February ... ..	·530	1·910	- 1·380	4
March ... ..	3·635	2·152	+ 1·483	24
April ... ..	·627	1·873	- 1·246	10
May ... ..	·375	1·912	- 1·537	4
June ... ..	1·320	2·115	- ·795	12
July ... ..	·916	3·568	- 2·652	9
August ... ..	2·142	2·934	- ·792	13
September ... ..	7·487	3·202	+ 4·285	23
October ... ..	5·476	3·919	+ 1·527	20
November .. ...	·684	3·393	- 2·709	5
December ... ..	3·938	3·096	+ ·842	23
	27·758	32·587	- 4·829	159

DAVID RINTOUL.

## Rainfall of 1896.

WEEK. ENDING.	RAIN INCHES.	WEEK ENDING	RAIN INCHES.
January 5	·399	July 4	·408
„ 11	·622	„ 11	·115
„ 18	·178	„ 18	nil
„ 25	·168	„ 25	·455
February 1	·220	August 1	·028
„ 8	nil	„ 8	·220
„ 15	·350	„ 15	·035
„ 22	·180	„ 22	·679
„ 29	nil	„ 29	·683
March 7	·985	Sept. 5	1·887
„ 14	·825	„ 12	1·422
„ 21	·820	„ 19	1·978
„ 28	·995	„ 26	2·070
April 4	·020	October 3	1·017
„ 11	·050	„ 10	2·963
„ 18	·515	„ 17	·430
„ 25	·020	„ 24	1·398
May 2	·097	„ 31	·313
„ 9	nil	Nov. 7	·175
„ 16	·050	„ 14	·389
„ 23	·270	„ 21	·115
„ 30	nil	„ 28	·005
June 6	·270	Dec. 5	1·340
„ 13	·520	„ 12	·770
„ 20	·345	„ 19	·385
„ 27	·100	„ 26	·645
		1897. Jan. 2	·798

D. RINTOUL.

# Meteorology for the 53 Weeks of 1896, ending 2nd January, 1897.

Height above Mean Sea Level—250 fct.

BAROMETRIC PRESSURE at 32' and Sea Level																
Week Ending	Mean			Highest	Mean Temperature	Lowest Mean Temperature	Max. Temperature in Shade	Min. Temperature at above ground	Min. Temperature on grass	Mean Daily Range of Thermometer	Greatest Daily Range of Thermometer	Smallest Daily Range of Thermometer	Mean Humidity	Grains of Vapor in a cubic ft. of air	Prevailing Wind.	
	Inches	Highest	Lowest													
Jan.	4	30.11	30.31	29.81	46.57	50.05	52.3	35.0	32.3	6.6	16.8	1.9	92	3.53	S.E.	
	11	30.80	31.01	30.48	36.4	40.4	42.5	29.8	30.0	5.94	12.0	.9	89	2.25	N.E.	
	"	18	30.05	30.32	29.50	43.30	45.95	49.7	31.6	30.0	8.1	12.3	2.7	81.7	2.85	W.
Feb.	25	30.29	30.51	29.93	40.79	46.70	51.9	30.1	28.2	9.1	14.1	2.2	90	2.70	Variable.	
	1	30.63	30.97	30.24	40.16	48.05	51.6	31.7	29.5	7.2	12.6	2.8	90	2.59	N.W.	
	"	8	30.57	30.73	30.22	39.39	46.60	53.0	26.7	26.2	9.6	12.8	5.8	86	2.66	S.W.
March	15	30.45	30.57	30.25	44.51	47.45	51.2	34.5	32.3	8.5	13.5	4.0	91	2.91	Wly.	
	"	22	30.15	30.69	29.68	39.45	44.65	52.0	29.1	28.3	10.7	20.2	2.9	91	2.50	E.
	29	30.31	30.50	30.11	37.55	31.85	51.1	26.5	24.9	11.7	16.1	7.6	90(2)	2.78(2)	E.	
April	7	29.78	30.10	28.83	44.54	47.80	50.3	35.2	32.7	6.2	11.1	2.2	84	2.83	N.W.	
	14	30.07	30.37	29.84	45.72	49.30	55.0	35.3	34.2	9.7	18.9	1.8	94	3.37	Variable.	
	21	29.84	30.01	29.68	45.23	48.75	54.2	32.1	30.4	10.9	21.1	2.9	89	3.06	Variable.	
May	28	29.90	30.11	29.65	48.56	52.50	63.1	39.3	36.4	9.0	23.0	6.4	80	2.99	N.W.	
	4	30.18	30.29	29.90	44.53	48.40	55.3	31.9	29.1	15.6	20.4	12.0	77	2.58	N.	
	11	30.26	30.34	30.02	51.57	53.70	49.25	59.3	43.8	40.7	10.9	14.1	4.1	79	3.21	N.W.
June	18	30.18	30.39	29.96	48.80	53.25	45.85	59.3	39.3	35.8	10.7	14.8	4.0	81	3.15	Wly.
	25	30.40	30.55	30.14	51.77	53.50	49.50	64.7	39.5	36.9	16.5	24.4	8.4	77	3.35	Variable.
	2	30.11	30.41	29.80	50.71	55.85	46.05	61.5	39.6	37.8	12.8	18.7	10.2	75	3.21	N.W.
July	9	30.38	30.49	30.23	53.44	57.20	48.95	68.5	39.7	37.1	19.6	22.6	17.1	69	2.94	N.E.
	16	30.29	30.44	30.16	61.04	64.90	57.55	81.3	45.5	44.5	24.7	32.8	17.1	71	3.73	Variable.
	23	30.13	30.26	29.97	58.24	64.95	73.2	39.2	38.1	15.6	23.1	10.3	71	3.74	N.W.	
August	30	30.36	30.53	30.19	57.39	62.60	53.75	76.2	45.3	44.0	19.7	27.2	15.4	72	3.53	N.E.
	6	29.86	30.20	29.72	62.66	65.30	59.65	76.0	51.2	49.5	17.8	24.8	11.0	66	4.08	Wly.
	13	29.73	30.17	29.49	62.21	66.10	56.05	78.3	52.8	50.9	15.2	24.4	6.5	79	4.58	Variable.
September	20	30.02	30.27	29.64	65.93	72.90	84.2	53.2	50.1	16.0	22.6	6.3	74	4.89	Variable.	
	27	30.19	30.29	30.04	62.96	67.65	58.75	79.3	49.8	48.8	16.9	23.3	11.1	69	4.29	Variable.







DURING THE YEAR 1896, ENDING SATURDAY, 2nd JANUARY, 1897.

Registration Districts.	Registration Sub-Districts.	Births.	Deaths.	Under 1 year of age.	Over 1 and under 5 years of age.	Aged 60 years and upwards.	PRINCIPAL ZYMOTIC DISEASES.										Total Deaths from Zymotic Diseases	Anthrax.	Influenza.	Erysipelas.	Syphilis.	Rheumatism.	Malignant Disease, Cancer.	General Tubercular Diseases.	Phtisis.	Respi- ratory.		Nervous System.		Circula- tory.		Digestive.		Uri- nary.	Puerperal.		Premature Birth, Congenital Malformations.	Senile Decay.	Violence.	Other Causes.	Inquest Cases.	Uncertified Deaths.	Rates per 1000 per annum.				Infantile Death Rate per 1,000 Births.
							Small Pox.	Measles.	Whooping Cough.	Diphtheria.	Membranous Croup.	Scarlet Fever.	Enteric Fever.	Typhus.	Others or Doubtful	Diarrhoea and Dysentery.										Asiatic Cholera	Pneumonia.	Bronchitis & other Diseases of Respiratory Organs.	Diseases of the Brain and Membranes	Diseases of other parts of the Nervous System.	Diseases of the Heart.	Diseases of other Organs of the Circulation.	Diseases of the Liver.		Diseases of other Digestive Organs.	Diseases of the Urinary Organs.							Puerperal Fever	Puerperal Septicæmia.	Puerperal Diseases (not infectious).	Birth Rate.	
Bristol	St. Mary Redcliff...	243	162	37	16	39	1	..	2	1	..	..	..	3	14	..	1	..	2	1	8	6	17	14	15	9	9	17	1	2	5	4	..	..	6	8	7	16	21	5	26.0	17.3	1.5	1.8	152.2		
	Castle Prccincts ...	112	111	18	9	27	..	3	..	1	..	..	..	1	5	..	1	1	..	3	5	7	5	12	6	7	17	1	2	4	4	..	1	2	23	3	33	..	21.7	21.5	0.9	1.3	160.7				
	St. Paul ...	593	383	97	53	99	..	16	2	5	..	5	2	..	39	..	1	1	2	2	18	14	30	28	70	27	18	32	4	3	19	8	..	2	14	7	10	34	27	4	30.2	19.5	1.9	1.5	163.5		
	St. James ...	200	129	45	8	34	..	3	..	1	..	3	..	..	9	..	1	..	..	..	4	1	11	10	25	9	9	8	..	3	..	4	..	1	10	3	4	13	13	2	26.0	16.7	1.1	1.4	225.0		
	St. Augustine ...	324	193	44	14	63	..	2	..	1	2	1	..	..	6	12	..	1	2	4	8	4	14	7	28	16	6	20	..	4	16	6	..	11	12	7	14	18	6	33.2	13.8	0.8	1.0	135.6			
Bedminster...	Bedminster ...	1813	806	216	159	172	..	63	34	13	1	19	3	22	155	1	7	3	3	37	24	58	46	110	59	44	64	6	9	40	19	..	5	31	23	13	44	47	4	35.8	15.9	3.0	1.1	119.1			
	Clifton ...	540	375	56	28	156	..	1	10	2	..	9	5	..	28	..	2	..	2	3	12	24	23	39	24	13	45	3	11	29	16	..	2	8	9	17	29	28	2	17.8	12.3	0.9	0.7	103.7			
Barton Regis	Ashley ...	644	315	75	22	109	..	3	7	1	1	3	1	17	33	..	1	1	..	17	13	30	14	34	18	14	41	3	6	11	10	..	2	12	18	14	21	20	1	23.5	11.5	1.2	1.0	116.4			
	St. Philip ...	1732	846	270	143	161	3	51	9	5	..	11	1	40	120	..	3	3	3	7	34	29	79	65	119	44	51	69	1	7	39	23	1	4	47	16	27	55	74	19	32.4	15.8	2.2	1.4	155.8		
	Westbury ...	251	181	19	4	87	..	..	..	2	..	..	3	..	1	6	..	1	..	1	10	3	15	10	12	21	14	31	3	6	13	7	1	1	7	5	7	7	10	1	14.5	10.1	0.3	0.8	75.6		
	Avonmouth ...	19	12	4	2	4	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	5	3	..	3	..	..	..	..	..	..	45	2	16	7	..	..								
	Extra-Municipal Institutions	66	309	15	3	159	1	1	..	..	..	..	..	..	4	6	..	..	3	1	14	6	35	16	35	79	2	34	3	4	5	3	..	..	..	..	..	..	..	..	..						
	Not belonging to Borough..	..	138	12	15	20	..	..	5	..	1	2	..	..	8	..	..	1	..	16	12	..	5	6	5	1	10	1	1	15	15	..	1	..	27	13	27	..	..	..	..	..					
TOTALS		6537	3960	908	476	1130	5	143	64	35	3	59	20	106	435	1	19	10	18	24	201	129	320	243	510	317	191	389	28	58	198	119	10	19	149	148	159	265	327	45	27.81	16.84	1.85	1.36	138.90		

NOTIFICATIONS RECEIVED DURING THE YEAR BY SUB-DISTRICTS AND AGE GROUPS.

Deaths in Public Institutions.		Registration Sub-Districts.	SMALL POX.					CHOLERAIC DIARRHŒA.			DIPHTHERIA.					MEMBRANOUS CROUP.					ERYSIPELAS.					SCARLET FEVER.					THE FEVERS KNOWN AS																TOTAL CASES IN EACH SUB-DISTRICT		
			Under 5.	5 to 10.	10 to 15.	15 upwards.	TOTAL.	Under 5.	5 upwards.	TOTAL.	Under 5.	5 to 10.	10 to 15.	15 upwards.	TOTAL.	Under 5.	5 to 10.	10 to 15.	15 upwards.	TOTAL.	Under 5.	5 upwards.	TOTAL.	Under 5.	5 to 10.	10 to 15.	15 upwards.	TOTAL.	TYPHUS.				TYPHOID, ENTERIC.				RELAPSING.			CONTINUED OR DOUBTFUL.			PUERPERAL.						
																													Under 5.	5 to 10.	10 upwards.	TOTAL.	Under 5.	5 to 10.	10 upwards.	TOTAL.	Under 5.	5 upwards.	TOTAL.	Under 5.	5 upwards.	TOTAL.		Under 5.	5 upwards.	TOTAL.		Under 5.	5 upwards.
Sanitary Authority	St. Mary Redcliff	...	...	...	...	1	1	...	...	...	4	6	6	8	24	...	1	...	...	1	1	14	15	14	24	3	7	48	...	...	...	...	...	3	3	...	...	...	...	...	...	92							
	Castle Precincts	...	...	...	...	...	...	...	...	...	2	...	1	12	5	...	...	...	...	...	6	6	9	10	2	4	25	...	...	...	...	...	1	1	...	...	...	...	...	...	37								
	General Hospital	179	...	...	...	1	1	...	...	...	6	7	1	12	16	1	...	...	...	1	3	11	14	21	28	16	10	75	...	...	...	...	3	9	12	...	...	1	1	...	...	121							
	St. Peter's Hospital	...	...	...	...	1	1	...	...	...	6	7	1	12	16	1	...	...	...	1	3	11	14	21	28	16	10	75	...	...	...	...	...	...	...	...	...	...	...	92									
	Royal Infirmary	224	...	...	...	...	...	...	...	...	3	12	...	5	10	...	...	...	...	...	15	15	23	33	6	5	67	...	...	...	...	...	...	...	...	...	...	...	...	96									
	Children's Hospital	71	...	...	...	...	...	...	...	...	2	1	...	5	8	1	...	...	...	1	...	13	13	15	24	17	15	71	...	...	...	...	...	...	...	...	...	...	...	537									
	Home for Crippled Children	...	...	...	...	2	2	...	...	...	16	15	8	24	63	2	...	...	3	5	4	52	56	121	148	64	37	371	...	...	...	...	3	6	23	32	...	...	1	1	...	...	6						
	Bedminster	...	...	...	...	...	...	...	...	...	6	3	2	16	27	1	...	...	...	1	...	24	24	76	94	44	41	255	...	...	...	...	1	3	8	12	...	...	...	...	...	...	189						
	Clifton	...	...	...	...	1	1	...	...	...	6	3	2	16	27	1	...	...	...	1	...	24	24	76	94	44	41	255	...	...	...	...	1	3	8	12	...	...	...	...	...	...	3						
	Ashley	4	...	...	...	1	1	...	...	...	5	7	3	9	24	1	...	...	...	1	...	27	27	36	43	27	23	129	...	...	...	...	1	9	16	26	...	...	...	...	...	...	366						
Extra Municipal	Fever Hospital	20	...	...	...	26	30	...	1	1	10	3	4	10	27	3	1	...	...	4	4	55	59	91	75	30	20	216	...	...	...	...	1	8	9	...	...	...	...	...	...	3							
	St. Philip	...	2	2	...	26	30	...	...	...	10	3	4	10	27	3	1	...	...	4	4	55	59	91	75	30	20	216	...	...	...	...	1	8	9	...	...	...	...	...	...	3							
	Westbury	...	...	...	...	...	...	...	...	...	4	3	4	12	23	1	1	...	1	3	...	10	10	14	23	19	20	76	...	...	...	...	...	...	...	...	...	...	...	...	...	124							
	Admitted to Public	97	...	...	...	...	...	...	...	...	4	3	4	12	23	1	1	...	...	...	...	7	7	4	3	1	4	12	...	...	...	...	2	4	6	...	...	...	...	...	...	41							
	Institutions from Ont-	101	...	...	...	2	2	...	...	...	6	6	1	1	14	...	...	...	...	...	7	7	4	3	1	4	12	...	...	...	...	...	...	...	...	...	...	...	...	...	6								
Long Ashton Union W'house, Bedm.	40	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	4	...	...	6	...	...	...	...	...	...	...	...	...	...	...	...	5									
Lunatic Asylum	73	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...								
Extra Municipal Inst'ns		...	...	...	4	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...							
Total		809	Total Cases of each Disease					2	2	...	38	42	...	1	1	64	53	30	94	241	10	3	...	4	17	12	234	246	427	509	229	187	1352	...	...	...	...	6	24	80	110	...	...	...	...	2	2	21	2032

The average age at Death of Persons aged 60 years and upwards was 72 years.  
Average Death Rate for 10 Years, 19'36.      Death Rate last year, 18'06.

Births of Illegitimate Children 205.      Deaths of Illegitimate Children 55.



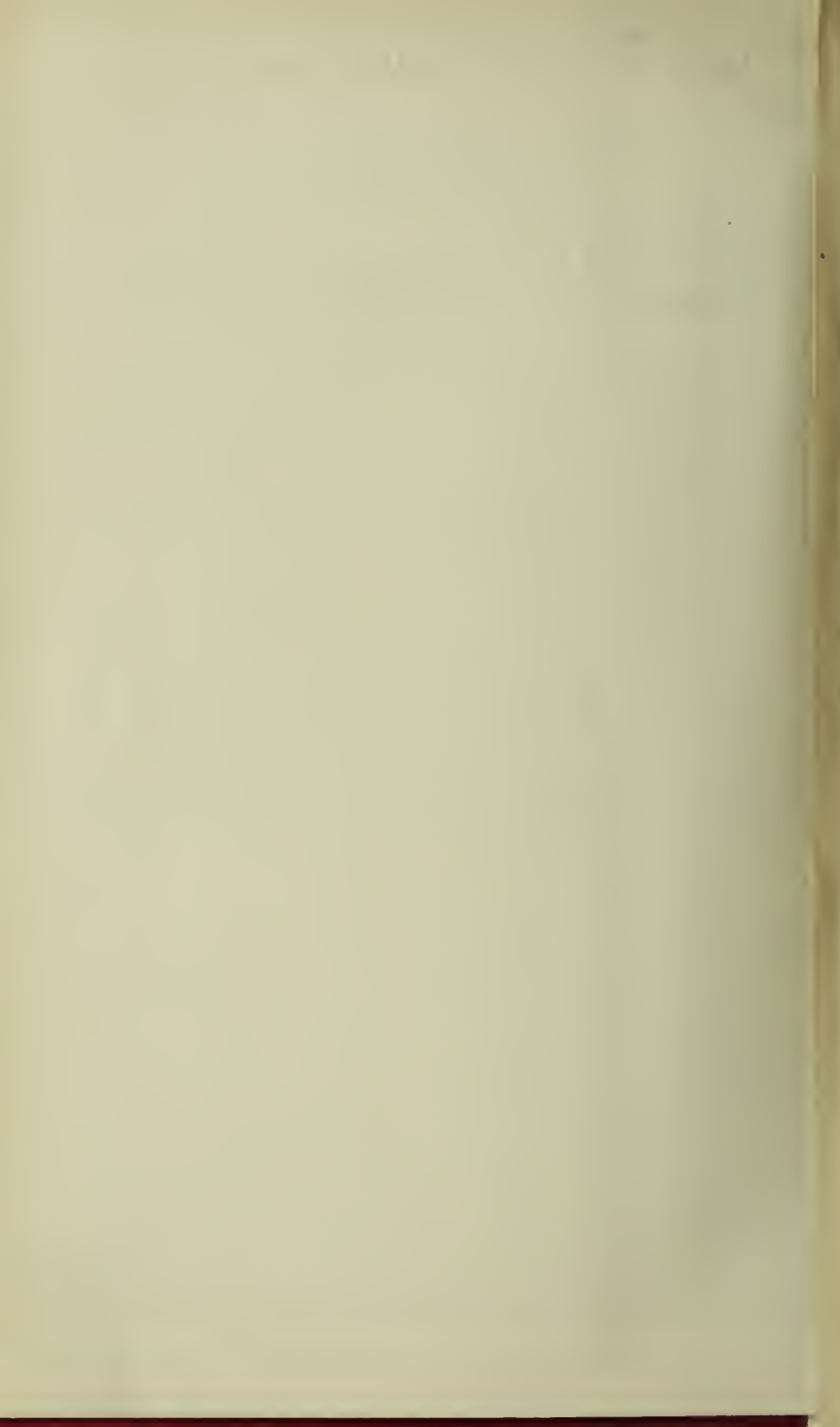


K<sup>2</sup> 3.

(A)

TABLE OF DEATHS during the Year 1896, in the Urban Sanitary District of Bristol, classified according to DISEASES, AGES, and LOCALITIES.

Names of Localities adopted for the purpose of these Statistics; public institutions being shown as separate localities. (Columns for Population and Births are in Table B.)  (a)	Mortality from all causes, at subjoined ages.								Mortality from subjoined causes, distinguishing Deaths of Children under 5 years of Age.																					
	At all ages.	Under 1 year.	1 and under 5	5 and under 15	15 and under 25	25 and under 65	65 and np-wards	(i)	1	2	3	4	Fevers.					10	11	12	13	14	15	16	17	18	19	20	21	22
													Typhus.	Enteric or Typhoid	Continued	Relapsing.	Puerperal.													
(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	Smallpox.	Scarlatina.	Diphtheria	Membranous Croup.	Typhus.	Enteric or Typhoid	Continued	Relapsing.	Puerperal.	Cholera.	Erysipelas.	Measles.	Whooping Cough.	Diarrhoea and Dysentery.	Rheumatic Fever.	Phthisis.	Bronchitis, Pneumonia, and Pleurisy.	Heart Disease.		Injuries.	All Other Diseases.	TOTAL.	
Saint Mary Redcliff ...	140	35	12	4	11	49	29	Under 5		1											2	3		1	11	1		2	26	47
								5 upwds.		2	1			1									12	13	14		4	46	93	
Castle Precincts ...	98	17	6	6	7	43	19	Under 5		1										2		1		2			2	15	23	
								5 npwds.										1	1				4	8	15		19	27	75	
Saint Paul ...	336	93	38	12	12	103	73	Under 5										1	13	2	9			29	1		1	75	131	
								5 upwds.		2	1			1					2			1	28	55	28		6	81	205	
Saint James ...	105	41	3	4	3	20	25	Under 5												2		2		6			1	33	44	
								5 upwds.															9	22	8		3	19	61	
Saint Augustine ...	170	40	9	6	7	57	51	Under 5		1										1		6		6	1		2	32	49	
								5 upwds.								1		1				3	12	24	14		4	62	121	
Bedminster ...	734	209	146	26	33	186	134	Under 5		8	6	1						2	60	33	20		4	60	1		2	158	355	
								5 upwds.		4	3			3		2		1	2	1	1	2	48	67	54		5	186	379	
Clifton ...	340	52	24	8	8	118	130	Under 5		4	2			1						10	1			13			2	43	76	
								5 upwds.		2				2		5			1			2	24	40	41		12	135	264	
Ashley ...	298	72	19	20	16	80	91	Under 5		2		1		1					2	7	15		1	18	1		4	39	91	
								5 upwds.		1	1							1	1		1	2	28	25	32		8	107	207	
Saint Philip ...	716	257	125	26	37	184	117	Under 5		5	1							2	47	9	38		5	103	3		2	167	382	
								5 upwds.		1				1				1	1		2	4	70	64	60		10	150	364	
Westbury ...	184	23	4	5	6	72	74	Under 5			1													6				20	27	
								5 upwds.			1			2		1					1	1	15	15	30		6	85	157	
Royal Infirmary ...	224	16	30	14	24	124	16	Under 5			5										1			7			12	21	46	
								5 upwds.			1			2		1							12	11	18		30	103	178	
General Hospital ...	179	13	10	18	16	112	10	Under 5			1											2	7				3	10	23	
								5 upwds.		1				3								1	10	17	16		16	92	156	
Children's Hospital ...	71	25	34	10		1	1	Under 5		2	8	1								7		1		8			1	31	59	
								5 upwds.		2	2			3										1				4	12	
Small Pox Hospital ...	4		1		1	1	1	Under 5	1																				1	
								5 upwds.	3																				3	
Fever Hospital...	20		13	7				Under 5		12	1																		13	
								5 upwds.		7																			7	
Bristol Union Workhouse...	97	5	2		3	39	48	Under 5		1														1				4	7	
								5 npwds.	1											1			9	7	8			65	90	
Barton Regis do do	101	7		2	2	40	50	Under 5													1			1				5	7	
								5 upwds.													2		15	12	10		1	52	93	
Long Ashton do do	40	3			1	12	24	Under 5																				3	3	
								5 npwds.															3	11	5			18	37	
Lunatic Asylum ...	73				6	51	16	Under 5																						
								5 npwds.															8	13	7		1	44	44	
TOTALS	3960	908	476	163	193	1306	909	Under 5	1	37	25	3		2				5	135	63	98		13	278	8		34	682	1334	
								5 upwds.	4	22	10			18		10		5	8	1	8	16	307	407	360		125	1275	2576	





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(B). Table of Population, Births, and of New CASES of Infectious Sickness, coming to the knowledge of the Medical Officer of Health, during the year 1896, in the Urban Sanitary District of Bristol; classified according to DISEASES, AGES, and LOCALITIES.

Names of Localities adopted for the purpose of these Statistics; Public Institutions being shown as separate localities.  (a)	Population at all Ages.		Registered Births (c)	Aged under 5 or over 5. (d)	New Cases of Sickness in each locality coming to the knowledge of the Medical Officer of Health.													Number of such Cases Removed from their Homes in the several localities for treatment in Isolation Hospital														
	Census, 1891. (b)	Estimated to middle of 1895.			Small Pox.	Scarlatina.	Diphtheria.	Membranous (roup.	Fevers.					Typhus.	Erysipelas.			Small Pox.	Scarlatina.	Diphtheria.	Membranous Group.	Fevers.					Typhus.	Erysipelas.				
									Typhus.	Enteric or Typhoid.	Continued.	Relapsing.	Puerperal.									Typhus.	Enteric or Typhoid.	Continued.	Relapsing.	Puerperal.						
St. Mary Redcliff H H ...	9,292	9,137	243	Under 5 5 upwds.		14 34	4 20								1 14				5 13										4			
Castle Precincts ...	5,595	5,056	112	Under 5 5 upwds.		9 16	2 3									6 6				6 8	1 1									3		
St. Paul ...	19,036	19,246	593	Under 5 5 upwds.		21 54	6 10	1							3 11				6 29	5 2										3		
St. James H ...	7,831	7,533	200	Under 5 5 upwds.		23 44	3 7										15		10 18	2 2										5		
St. Augustine H ...	13,795	13,653	324	Under 5 5 upwds.		15 56	2 6	1									13		6 33	1 1	1									1		
Bedminster H ...	45,627	49,588	1813	Under 5 5 upwds.		122 249	16 47	2 3		3 29					4 52			24 108	6 7			2 10								1		
Clifton ...	29,345	29,691	540	Under 5 5 upwds.		76 179	6 21	1		1 11							24	28 93	1 3											1		
Ashley ...	24,042	26,822	644	Under 5 5 upwds.		36 93	5 19	1		1 6							27	9 31		4										1		
St. Philip H ...	51,624	52,376	1732	Under 5 5 upwds.	2 28	91 125	10 17	3 1		1 25					4 55			2 28	34 53	2 1	1									4		
Westbury (including Avonmouth)	15,391	17,516	270	Under 5 5 upwds.		16 66	4 19	1 2			9						10		5 22		3									1		
Bristol General Hospital ...	Admitted from outside of Borough.			Under 5 5 upwds.			2												2													
Bristol Royal Infirmary ...				Under 5 5 upwds.			4										7			4										7		
Children's Hospital ...				Under 5 5 upwds.			4					1								4												
St. Peter's Hospital ...				Under 5 5 upwds.																												
Small Pox Hospital...	Admitted from outside of Borough.			Under 5 5 upwds.	2													2														
Fever Hospital ...				Under 5 5 upwds.		4 8													1 13													
Bristol Union Workhouse...				Under 5 5 upwds.		4 1													4													
Barton Regis Workhouse...			66	Under 5 5 upwds.																												
Long Ashton Workhouse ...			Under 5 5 upwds.																													
Lunatic Asylum ...			Under 5 5 upwds.																													
Totals...	221,578	230,623	6537	Under 5 5 upwds.	2 40	427 925	64 177	10 71		6 104		2 2	21 21		12 234		2 40	134 421	24 38	2 2		2 43					1 1		31 31			

Notification of Infectious Disease has been compulsory in Bristol since February 12th, 1890. Only those Diseases Scheduled in the Act are at present Notifiable. The Isolation Hospitals used by the Sick of the District are:—

NAME OF HOSPITAL.	DISEASES ISOLATED.	DISTRICT WHERE SITUATED.
1.—Sanitary Authority's Hospital ...	Small Pox or Scarlet Fever ...	Novers Hill, Bedminster, outside City.
2.—Bristol Guardians' Hospital ...	Small Pox, Fever, Erysipelas ...	Stapleton, outside City.
3.—Barton Regis Guardians' Hospital ...	Small Pox and Fever (now closed, except for cases arising in the House) ...	Eastville, Stapleton, outside City.
4.—Bedminster Guardians' Hospital ...		Absorbed by the Novers Hill Hospital (1).
5.—Children's Hospital ...	Scarlet Fever, Erysipelas ...	St. Augustine, Bristol.
6.—Bristol General Hospital ...	Enteric Fever ...	Partly in St. Mary Redcliff, and partly in Bedminster.
7.—Royal Infirmary ...	Ditto ...	St. James, Bristol.
8.—Clift House (temporary) ...	Scarlet Fever, Diphtheria, Fever ...	Bedminster, Bristol.

Diphtheria is, as a rule, only admitted into Public Institutions in cases where operation is necessary.





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